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Decision-Making

BARNABY C. KEENEY

Some Responsibilities of the State University

RUSSELL I. THACKREY

Other articles by

Frank H. Bowles, Eugene E. Dawson, Dean K. Whitla, Ernest Stabler, Arnold B. Grobman, Morris A. Gelfand, Paul Heist, John E. Owen, D. C. Andrew and Francis Stroup, Walter Crosby Eells

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RAYMOND F. HOWES, *Editor*

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Contributors to This Issue

BARNABY C. KEENEY has been president of Brown University since 1955 and is professor of history, specializing in the medieval period. He has served Brown as dean of the Graduate School and of the undergraduate men's College. His article here is adapted from a speech made to the New England Society of Newspaper Editors, November 1959.

RUSSELL I. THACKREY has been executive secretary of the American Association of Land-Grant Colleges and State Universities since 1947. He is special consultant to several Council committees. His article here is an adaptation of an address to a faculty-trustee forum at Pennsylvania State University.

FRANK H. BOWLES has been president of the College Entrance Examination Board since 1948. He has recently been granted a two-year leave of absence to direct an international study of university admissions theory and practice. His article here is adapted from an address to ROTC Army instructors at Saint Peter's College.

EUGENE E. DAWSON is president of Colorado Woman's College and president of the Division of Schools and Colleges of the American Baptist Convention. He served the American Association of Colleges for Teacher Education as national coordinator of the Teacher Education and Religion Project and has been a member of the Council's Committee on Religion and Education. He has published articles in national and international religious and educational publications.

DEAN K. WHITLA is director of the Office of Tests, Harvard College, and assistant professor of education, Harvard University. He is also director of a national study of public school principals conducted at Harvard's Graduate School of Education, sponsored by the U.S. Office of Education. His article here is taken from an address given at the Conference on College Testing held at Clark University in May 1959, sponsored by the Council's Committee on Measurement and Evaluation.

ERNEST STABLER has been chairman of the Master of Arts in Teaching Program at Wesleyan University since 1952. His major field of study is the history and philosophy of education. He has published articles in educational journals in the United States and abroad.

ARNOLD B. GROBMAN is currently on leave from the University of Florida Museum to serve as director of the Biological Sciences Curriculum Study at the University of Colorado. He also serves on the Executive Committee of the American Institute of Biological Sciences, the Council of the American Association for the Advancement of Science, and the Training Committee of the American Association of Museums.

MORRIS A. GELFAND is librarian of Queens College. Since 1949 he has participated in evaluation visits for the Middle States Association of Colleges and Secondary Schools and is now engaged in a study of library evaluation for the association. During 1958–59 he was Fulbright lecturer and consultant in librarianship at the University of Rangoon, Burma. He is a frequent contributor to library periodicals.

PAUL HEIST, associate research psychologist on the staff at the Center for the Study of Higher Education at Berkeley, is program coordinator of a five-year research project investigating the impact of various institutions on college students. He was previously associate professor of psychology at Oregon State College. His publications concern personality research, especially differentiation among students and student groups.

JOHN E. OWEN is associate professor of sociology at Wisconsin State College, Superior. In the past he has been a faculty member of several American institutions and of the University of Helsinki, Finland. His articles have been published in fifteen countries. The article printed here is based on observations made during 1958–59 when he served as Fulbright lecturer in sociology at the University of Dacca.

D. C. ANDREW is academic dean of Southern State College at which he was previously director of counseling and professor of psychology. He is coauthor of *Modern Methods and Techniques of Guidance, Organization and Administration of a Guidance Program,* and *120 Readings in Guidance* and author of articles published in professional journals.

FRANCIS STROUP is currently at Northern Illinois University. He was previously head of the physical education department of Southern State College, where he directed a study of the general education program, supported by the Fund for the Advancement of Education. He is author of a textbook *Measurement in Physical Education.*

WALTER CROSBY EELLS has been engaged in research projects since his retirement from active educational service in Japan in 1951. His research has led to the publication of magazine articles, monographs, and books by the Council, the U.S. Office of Education, the National Education Association, and the Southern Regional Education Board. Two books are now in press: *Administration of Higher Education* and *Academic Degrees,* from the latter of which his article here was drawn.

The Educational Record

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Decision-Making

BARNABY C. KEENEY

One of the most amusing things about educational institutions is how decisions are made. Decision-making is a popular study in schools of management, public administration, and business and among sociologists, who are themselves quite amusing, though they do not intend to be. Very few college presidents have ever studied decision-making. As you will see, this is probably good.

The question of how decisions are made in colleges cannot very well be separated from the one about who makes the decisions. There is a body of theories on this question. Legally, of course, the trustees, by whatever name they are called, are responsible for making all decisions. In the nineteenth century, which was a great period of American individualism, trustees decided what the faculty would think or, at least, what they would say. As colleges have become better established and their boards more sophisticated, the trustees have delegated a great deal of the decision-making to the full-time staff. Beardsley Ruml, however, seriously thought that the board of trustees can sit down and devise a curriculum. This suggestion is greeted with horror by most, but not all, other trustees I know.

Another theory is that the president runs the institution. Sometimes this theory approaches fact. A college president has a great deal of power, most of which is undefined and some of which he is well advised not to use, but there is no escaping the fact that, if he is doing his job, he is involved in every major decision that the institution makes. As you will see, he makes decisions or participates in them in a somewhat different way from other executives. Some people look on the president as a sort of father, and, as you know, a great many young men do not really like their fathers.

Another theory is that the faculty runs the institution. Within the realm of education, this is very close to fact because, no matter what anyone tells a good professor to do, he will do and teach just about what he wishes, and, if he is pestered too much, he will simply go away, for good professors are highly mobile. It is quite idle, for example, for anyone to devise a curriculum and try to impose it on the faculty: no matter what you call a course, the man who teaches it will determine its content. Wise presidents and boards rely very heavily on the faculty for decisions about education, and they are still wiser

if they do not trouble them with decisions about other matters, such as the location of lamp posts on the college green.

Still another theory about control is held by the students. Any good student body is convinced that it could run the institution much better than it is being run. Students tend to forget that they have, in a way, "hired themselves educated," and that, having hired an institution, they are well advised to abide by the decisions of the institution. Nevertheless, no educational decision can really be carried out without the students' approval, because it is virtually impossible to *impose* education upon bright young men.

There is also folklore about the decisions. A great many people believe that the alumni make the decisions in colleges, and this belief is inextricably embedded in the fiction about college life. The alumni are supposed to demand good football teams and to be completely uninterested in education. Actually, our alumni are very understanding about athletic success and failure. They are very much interested in education and are often envious of what the students are getting. This is true, however, only when the alumni were, as undergraduates, actually educated; unfortunately, this has not been universally the case in many institutions, nor of all alumni in any institution.

Another bit of folklore is that public opinion determines policies. Public opinion is very important, and, if its effect is properly channeled, it can present considerable opportunity for educational institutions. For example, the furor over the sputniks and Russian science in general has increased the resources available to colleges and universities for the development of their programs in sciences and engineering. Some day, no doubt, there will be another revelation, and people will become excited about education in the humanities and realize that it profiteth a man very little to win outer space if he thereby leaves his own soul prostrate on the ground. Another example of the effect of public opinion is the great concern among the American people that their extraordinary increase in fertility will ultimately result in depriving many of their children of the benefits of education—which, presumably, will cause them to become even more fertile than they have been before. This has forced many public institutions to expand, sometimes too rapidly, and has set up a climate of opinion whereby the public is favorably disposed to vote large sums of money for the support and growth of publicly financed education.

I have still not told you who makes the decisions. Let me give an example of why I have not told you. I shall take a major educational decision in Brown University as my example. We have formally been in the business of preparing teachers for the secondary schools for about one hundred years, and for one hundred years before that preparation was a by-product. Until 1955 or 1956 there had been no great change in the curriculum for the preparation of secondary school teachers for fifty years or so. Changing the curriculum, by the way, is about as easy as moving a cemetery, and sometimes takes about as long.

We have recently made a major change in our graduate curriculum for secondary school teachers. I shall describe the evolution of this change step by step. The first element was an idea. This idea occurred to me in a roomette somewhere in the Middle West in 1950. I had been visiting universities at the expense of one of the foundations and had seen quite a lot of teacher preparation that I did not like very much. I had also been teaching undergraduates for about fifteen years and had seen quite a few results of their preparation

that I did not like very much. Having conceived the idea, I set about discussing it with members of the faculty, with teachers in schools, with the president (for I was then dean of the Graduate School), and with the people who run the schools. It took quite a while for people to become convinced that this was a feasible program, and, in the process, the idea changed quite a bit—mostly, I think, for the better. There were several interruptions: one of a little over a year when I was on leave, and one of three years when I was dean of the College before I became president. During these periods the idea matured in the minds of a good many people. (That means nothing happened.)

The second step occurred in 1955 when I became president and set about putting this plan into effect. The first move was to find a man to run the program. I appointed a committee and gave it a model in the person of Mr. Elmer Smith, then assistant superintendent in the Providence school system. I told the committee that it would be better if we could find a man elsewhere, but, in no case, should we accept anyone less qualified than he. The committee looked for about a year and a half, and the people who wanted to come appeared to be less qualified than Mr. Smith, and the people whom we would have liked to have did not wish to come, so we finally appointed him. He and the dean of the Graduate School, together with the chairman of the department of education, then became responsible for putting the plan into effect. In the course of this, the plan developed a great deal further and, except for the central kernel, was quite different from what I had originally had in mind and, in fact, much better.

The next step is the real key, and that is the enthusiastic support of the faculty. Nothing could have been done without this support and their willing participation which were achieved for two reasons: the first being that the plan was a good one, and the second that it was in the hands of diplomats. It then became necessary to secure the agreement of the fellows of the Corporation to a new curriculum. They agreed with some enthusiasm.

Large sums of money were needed to carry out the plan. I had begun to look for funds in 1950 and had been discussing the evolving plan with the very sympathetic officers of the Fund for the Advancement of Education after that. In 1956 and again in 1959 they made sizable grants which together with grants from other foundations totaled more than $2,000,000. Here decisions that had a vital effect on the program were made outside the university.

Meanwhile, it was necessary to build up support in the schools, among both the teachers and the administrators. This, too, was a slow process. I shall never forget the tangible skepticism of a group of superintendents when I told them that we were about to undertake a major program in teacher-training.

As the program has been in operation, it has changed further. It has changed without compromising the original conception, and it has changed a great deal for the better.

The question now is, "Who made the decision?" The trustees agreed to it, but they did not conceive it. The faculty participated enthusiastically and agreed to the legislation. The real decision is made in the classroom every day. Students came, and therefore they made a decision that was an essential one. The foundation decided to make grants, and other foundations followed in their steps. The alumni were interested but exerted no pressure. Public pressure was not an important factor, because this idea preceded any real public concern about

the schools. As president, I facilitated the development of the program, but I made no major decision except to try to work out something and to appoint one man. There was no beating on the desk; there was no chart of organization; there was not even a reorganization; there was no crisply worded directive; there was no market survey to determine whether or not there were customers. Yet this is a very efficient program, and, given what was necessary, it was put into effect in an efficient manner. It is sound in detail and broad in conception, and there was no fuss, no fight.

What would have happened if I or my predecessor had made a clear-cut decision at the very beginning to proceed as we have proceeded? In the first place, such a decision would have been impossible unless a man were endowed with foresight beyond human nature, because no one could have foreseen what has happened since. Furthermore, if the president had made a unilateral decision, the faculty would have had to be either wooed or beaten into participation. They would not have supported it, and some of them might have gone away. The director of the program probably would not have been found and certainly would not have been received as he has been by the faculty. The foundation would not have made a grant, because they would have perceived that faculty support was lacking. Thus, the students would not have come, and thus there would have been no program.

There is a great lack of understanding among the public of how educational institutions operate, and decision-making is a very important phase of operation. It is very easy for people to concentrate on the wrong things, and even easier for them to be distracted by unfamiliar procedures. The decisions that will be made about American education in the next few years will shape the course of the world in the next generation. Some decisions will be made inside education, some outside. They must be made on the basis of understanding, not preconception.

Some Responsibilities of the State University

RUSSELL I. THACKREY

A CENTURY ago this country badly needed a drastic expansion in the offerings of our colleges and an increase in the percentage of young people going to college. During three decades of the last century the percentage of young men going to college actually dropped by a third! This happened in an expanding country desperately in need of many more well-educated young people to solve its increasingly complex problems. The existing system of higher education showed itself unable to adapt in order to meet the need. Even the few state universities then in existence on the whole followed the established tradition of limiting their offerings to preparation for the traditional professions and gentlemanly occupations.

There was a widespread demand by farsighted men and women for the creation of new institutions to meet the need. The agitation centered around the lack of advanced training available in the fields of agriculture and engineering—or "agriculture and the mechanic arts," as they were then described. Pioneering institutions were founded in several states. Many failed for various reasons. Pennsylvania State University was one of the first two to survive the pioneering stage and become an example of what has been called America's unique contribution to the long history of higher education in the Western world—the land-grant state university.

The fathers of this movement dreamed no little dreams. Although they wanted to be sure that education for agriculture and industry had an honored place in the people's college, it was not to be at the expense of traditional subjects or of new claimants for a place in the educational sun. After specifying that agriculture and the mechanic arts should be emphasized, they went on to specify that "other scientific and classical subjects should not be excluded"— which meant, according to the man who wrote the Land-Grant Act, that they should be included. To make assurance doubly sure, they defined the whole objective as "the liberal and practical education of the industrial classes in the several pursuits and professions of life."

Although the Land-Grant Act is often viewed as increasing the attention paid to *vocational* as opposed to *liberal* education, it is interesting to note that Jonathan Baldwin Turner, one of the great figures in the movement, used the word *liberal* in its true sense: as *liberating*. He often said that the professional classes of the time—constituting 1 percent of the population—had *their* colleges to provide *their* sons with a liberal education, and that what he wanted was to provide a form of *liberal* education suited to the needs of the rest of the people.

The men of a century ago had high expectations. Replying to the charge that the state could not properly provide for the conduct of a public university, Turner in a speech delivered in 1850 suggested that public control if properly approached, could be far more conducive to academic distinction and freedom than other types of control. He said that the public university should be put under a board of trustees who should be in full charge of its affairs but directly responsible to the people through the courts.

The following is his description of the

requirements for membership on such a board:

> The candidates should be elected with such an evident regard to merit, and disregard of all political and sectarian relations, as ever to carry the conviction that the equal good of the whole is sought.
>
> There can be no great difficulty in accomplishing this, if it is well known at the outset that the people will keep their eye closely upon that man, whoever he may be, who, by any bargaining for votes, or any direct or indirect local, sinister, or selfish action or influence, or any evasion or postponement, or by any desire to tamper and amend merely to show himself off to advantage, shall in any way embarrass or endanger this greatest of all interests ever committed to a free State—the interest of properly and worthily educating all the sons of her soil.[1]

People like Turner had great faith in the future of this country and in the contributions higher education could make to it if suited to and accessible to all who could profit from it.

How much faith did people like Turner have? Some indication may be had from a review of conditions at the time the Land-Grant Act was signed into law by President Abraham Lincoln.

The date was July 2, 1862. On July 1, Union forces had lost a major battle in a war which made uncertain the very existence of this nation. This country, North and South, had a population of 32 million at the time. Out of this population more lives were lost as a result of war between 1861 and 1865 than in any other war in which this country has been engaged. Four times as many men were killed as in World War I, a million more than were killed in World War II, twenty times as many as in the Korean War. Inflation was rampant, and "printing press money" was a fact. Yet in this darkest period of our history the Congress of the United States and the President of the United States had no hesitancy in investing a major portion of our national resources in the higher education of future generations of America's young people. I often think of this when I am told—as those of us in higher education frequently *are* told—that education is this country's soundest and most important investment, but that just now we cannot afford to give coming generations even the same relative opportunity recent generations have had.

Was this faith justified? In these times of emphasis on high-level training, some part of the answer lies in the fact that although the land-grant institutions are only 3.4 percent of the total number of colleges and universities in this country, they grant nearly 40 percent of all doctor of philosophy degrees in all fields: 55 percent in biology, 100 percent in agriculture, 43 percent in physical science, 53 percent in engineering, 35 percent in mathematics. Although the land-grant institutions enroll only 18 percent of the United States student body, they confer more than 31 percent of all doctoral degrees in the social sciences, 28 percent of those in business and in education, over 25 percent of those in English, and about 23 percent of those in foreign languages and literature.

With full awareness that statistics alone cannot measure quality, it may be noted that 45 percent of all the members of the National Academy of Science, over 50 percent of all living Nobel prize winners, roughly 50 percent of the members of Congress, and 47 percent of all the degree-holding employees of one of our great electrical companies, have one or more degrees from land-grant colleges and state universities.

Today we as a nation face a situation that in some respects compares with that of a century ago. Higher education needs a vast expansion merely to stand

[1] Address given at Griggsville, Ill., May 13, 1850. See Mary Turner Carriel, *The Life of Jonathan Baldwin Turner* (privately printed, 1911), p. 92.

still—merely to educate the same proportion of our young people as we have been educating over the past decade! At the same time we must make sure that the quality of higher education is steadily improved.

What is the role of the public university of today and tomorrow? Before I try to clear ground on this subject let me clear away some underbrush: First, all universities, public and private, have many functions in common. Second, by the term "public university" I mean the system of public higher education in a given state, and not necessarily a specific institution.

Briefly, the role of the public university is to conserve knowledge, to advance knowledge, and to transmit knowledge. Thus stated, it is no different from that of any other university. But the role of the public university is different in that it is designed to meet the needs of the whole commonwealth, rather than just those of any specific clientele. As the late Samuel Capen said:

> [The state university] should concern itself with the service, the aspirations, and the destinies of the people of the whole commonwealth. The grand plans of the most conspicuous and the most useful state institutions of the country have concerned themselves with these very things, and as these plans have gradually been carried into effect the states which maintain the institutions have gained in wealth, in stability, in resourcefulness, and enlightenment.

It is this concept of teaching, research, and service responsibility to *all* the people that distinguishes the state university. Other institutions may define their roles as narrowly or as broadly as they wish, and as their resources may support. They *may* exist primarily to serve the educational needs of a religious body, of a region, or of an intellectual, social, or economic elite. The state university does not have and should not have such a choice: its responsibility in resident instruction is to serve all the young people of the state who can benefit from higher education and wish to attend the public university. Nor can it, as President Hatcher of the University of Michigan has so ably pointed out, take the position that "only one curriculum—even though that be in liberal arts—offers the only hope for the survival of our civilization in the present period of international unrest." Our civilization is deeply rooted in science, technology, and the professions, and the needs and desires of individuals for education for effective leadership in these areas must be provided for. Indeed, one of the most serious of the wrong assumptions made by many who speak of education in our time is that there is some antithesis between specialization and a liberal education—but this is another story.

It has been part of the American dream from the beginning that the opportunity for education should be open to all to the extent that the individual can benefit from it. (The concept of public responsibility for realizing this dream antedates the Constitution itself, since it was written into the Northwest Ordinance of 1787.) An eloquent early statement of that dream was made by John B. Bowman, first head of what is now the University of Kentucky:

> I want to build a people's institution; a great free university, eventually open and accessible to the poorest boy in the land, who may come and receive an education practical and suitable for any business or profession in life. I want to cheapen this whole matter of education, so that, under the broad and expansive influence of our Republic institutions, and our advancing civilization, it may run free, as our great rivers, and bless the coming millions.
>
> Hitherto, our colleges and universities have been accessible only to the few, such are the expenses attending them. We therefore want a university with all the

colleges attached, giving education of the highest order to all classes.[2]

This was the dream, and we have come far toward fulfilling it, using our public colleges and universities as the primary instruments. They were established in the belief that if the individual is educated to the maximum of his capacity, society will be the primary beneficiary and that, therefore, society should be responsible for making the opportunity available to all. It is useless to quibble over whether the individual has a *right* to a university education. The important thing is that the interests of all of us will be advanced if all have the *opportunity* for such an education. It is part of the responsibility of the public university to provide continuous and continuing leadership toward the realization of this ideal. Obviously the degree to which it can be realized in any state at any time is conditioned by many factors outside the control of the state university.

Opportunity for education is a mockery and a sham if that educational opportunity be of poor quality. Therefore, the ability and willingness of the state to finance support of an adequate faculty are prime determinants of the extent to which opportunity is effectively available. And, though the faculty must be the first consideration, there must be classrooms, laboratories and equipment, and places to live.

The many pressures for funds and lack of adequate support from tax sources have caused many public universities to resort to deriving an increasing proportion of income from students and their families. Today the average American student in the average public university pays a far higher proportion of the total cost of his education than the student in almost any other major country of the world. It is small comfort to know that the idea of higher education being available to all was an American idea if we lose the reality of it in our own country.

The public university is the open door to upward social mobility: or as President Morrill of Minnesota has put it much more eloquently, ". . . it is the touchstone of opportunity for youth to rise to the limits of their capability and determination, and thereby the guarantee of a mobile . . . society."[3]

This door may be closed to many young people, with incalculable harm to the country, through two processes: (1) the rising cost of education to the student and his family through increases in tuition charges and living expenses; and (2) the arbitrary limitation of enrollments because of limitations of staff and facilities. Either or both may be necessary in a given institution at a given time if quality of instruction is to be preserved. But acceptance of a necessary evil does not mean that it should be condoned.

It is often said that a high tuition charge merely has the effect of making those able to pay do so, and that worthy students who cannot pay the cost should be given scholarships. This is a glib argument but not a sound one.

In the first place it is in the American pattern and tradition that public services are equally available to all on the same terms, and that differences in contributions according to ability to pay are effected through taxation. The financially well off *do* pay for public higher education in proportion to ability. We would be shocked at the idea of asking a well-to-do family to contribute an extra hundred dollars to the support of the police force before getting police aid in

[2] Bowman, "Report," *Kentucky University, Announcement, 1865–66*, as quoted in James F. Hopkins, *The University of Kentucky* (Lexington: University of Kentucky Press, 1951), p. 76.

[3] J. L. Morrill, *The Ongoing State University* (Minneapolis: University of Minnesota Press, 1960), p. 135.

solving a burglary. And we would be shocked at the idea of asking a poor family to submit to a means test before receiving police protection. If *all* our institutions have student charges so high as to exclude the children of all but well-to-do families and those who are willing to make extreme sacrifices for education, then our colleges and universities become courts from which there is no appeal for the student who does not receive a scholarship. President Henry of the University of Illinois has suggested that the ceiling on the tuition charge of public institutions should be set in such a way as to ensure that the total costs of room, board, tuition, and other expenses do not exceed what the student may earn in summer and part-time winter employment. In other words the student whose family cannot or will not help him should be able to work his way.

It has also been suggested that students who cannot finance their education or qualify for scholarships should borrow to pay the cost, on the theory that education is a good investment and a great financial benefit to the individual. Certainly more loan funds are needed than are now available. Certainly some students, of their own free choice, will choose to borrow. But the opportunity to borrow differs from the necessity of borrowing. What happens to the concept of service in a society that tells its young people that it has no responsibility for their education? Can we afford to let the size of our supply of educated leadership and of scientific talent depend on the willingness of young people just out of high school to mortgage their future for a college education? What happens in a recession when the financial advantages of higher education look less alluring and the terms of credit become much more stringent at the same time?

Of two things I am sure in this connection: One is that the application of the charge-account philosophy to higher education is not the answer to the Russian challenge; the second is that the ideal of equal access to education is not discernible in proposals that the children of the wealthy finish college and start life free of debt, while the children of people of moderate or low income are asked to start their careers and found their homes under a long-term indenture.

The fact is that the public college or university with low fees provides the best, lowest cost, and least complicated scholarship-assistance program conceivable.

Those who argue that students should pay more of the cost of education sometimes use the argument that the faculties of our universities are subsidizing the students. But it should be clear that if faculty salaries are too low, the teachers are subsidizing society as a whole, and not the students; and that if student fees are raised as a matter of necessity in order to increase faculty salaries, individual students are being asked to assume what ought to be a public responsibility.

The establishment of rigid admissions standards based on test scores or high school class standings also bars many students of great potential from higher education. It is often said that too many students are in college, or that the wrong students are in college, and that we would save much money by eliminating at the outset those who cannot do college work. But all the objective standards that have been devised are no better than rough determinants of ability. One well-known public university with high standards found that 200 members of its graduating class of 1,000 would not have been permitted to enter had the ordinary test-score cutoff point in use at many institutions been applied. One of the 200 was a Phi Beta Kappa; several were on the dean's honor roll at various times; several were doctors or engineers. Objective measurements of college ability are useful—but I would much prefer

to use them in counseling and guidance of students than for the rigid exclusion of a large group falling below a certain line, unless those falling in that group have some other opportunity to prove that they can do college work.

My chief point is that the quality of a public university's undergraduate instruction is not determined by the rigidity of its admissions standards, but by the quality of instruction it provides and the standards of performance it requires. Regardless of the quality of the faculty, the graduates of any college will show a formidable record of performance if only students of the very highest ability are admitted. The problem of the public university is to provide programs that will challenge the most gifted student and at the same time bring out the capabilities of the slow learner and the late bloomer. There are those who would give advanced education to only an intellectual elite. No democracy can long survive on that basis.

The responsibility of the state university for education extends not only to its undergraduate and graduate students, but to adult and continuing education in all its variety. This includes degree-credit courses for those who are employed full time; programs designed to bring the latest scientific and other developments into practice by those already engaged in the professions; and cultural programs for appreciation of life or for the discharge of adults' obligations as citizens. Much of the hope of our educational leaders for solving the problems of overcrowding and overspecialization of the formal college curriculum, in fact, rests on the continuance and substantial expansion of postcollege education. We are witnessing a movement back to fundamentals in at least some of our technical curricula—toward consolidation of programs rather than expansion. Interestingly enough, it is the accelerated pace of increase in technical and special knowledge that is at the root of this development. The tendency has been for each new field of specialization to be provided with its curriculum. Now the thinking of many is that technical advance is so rapid that there is small point in teaching the latest developments in college, since they will be outdated by the time the student starts practicing them. Thus, we have the movement to concentrate on the fundamentals essential to a particular broad field of work, and to leave to adult and continuing education programs the task of keeping the practitioner up to date in his field.

The public university also has a responsibility to and for public service that is greater than its instructional responsibilities however broadly defined. To the maximum extent practicable, its resources in scholarship, in research, must be brought to bear on the solution of the problems of the people of the commonwealth, and of the nation.

The public university has the responsibility for advancing the frontiers of knowledge and human understanding through pure or basic research not directed toward the solution of any specific problem. There is no law of mankind that is more certain than the one that a people that places the most emphasis on applied knowledge at the expense of basic research is the one surest to find the bottom gone from the basket in which it placed all its eggs. One of the greatest achievements of the present-day university, as Sir Eric Ashby has pointed out, is that:

> by adapting itself to the scientific revolution [it has] reunited education and discovery . . . two fundamental activities of the human mind. Through their responsibilities for research, they have taken their place among the pacemakers for technological change, at the same time they resist

some of the disintegrating effects of modern technology.[4]

Above all, perhaps, is the role of the university in encouraging individual differences and variety in a civilization increasingly characterized by pressures for conformity, and by mass production of everything from ideas to automobiles.

The concept of equality in America does not involve the idea that all men are in fact equal. It is, in fact, based on the belief that all men are different—so different that no one is wise enough or unselfish enough to determine who should be given a hereditary and fixed status in life as a superior being, or who should be denied the opportunity to prove his ability. We believe in equality of opportunity to be different, to be individual, to dissent, to dare. Education is a major means through which opportunity is kept open.

If our universities are responsible for giving us the concept of motivation research for determining the likes and dislikes of people considered en masse, they also have given us the individuals who have proved spectacularly in a few cases that *nobody* particularly wants to buy what *everybody* was supposed to want.

I have tried to say something about the responsibility of the state university for leadership in quality education for undergraduate and graduate students; in keeping the doors of educational opportunity open; in advancing the frontiers of knowledge; in adult education and continuing education of all kinds; and in public service. To these I would certainly add the responsibility for education for understanding of the world in which we live and understanding of the cultures, problems, and aspirations of other nations and peoples.

Is the task important? There are many ways of answering this question, and I could furnish a great many from the statements of great figures in the world of today and the past. I will content myself with two: The first is from the late Alfred North Whitehead, a great student whose career spanned many years at Cambridge University in England and at Harvard in this country:

> When one considers in its length and in its breadth the importance of this question of the education of a nation's young, the broken lives, the defeated hopes, the national failures, which result from the frivolous inertia with which it is treated, it is difficult to restrain from oneself a savage rage. In the conditions of modern life the rule is absolute, the race which does not value trained intelligence is doomed. Not all your heroism, not all your social charm, not all your wit, not all your victories on land or at sea, can move back the finger of fate. Today we maintain ourselves. Tomorrow science will have moved forward yet one more step, and there will be no appeal from the judgment which will then be pronounced on the uneducated.[5]

The second quotation is from a graduate of Harvard University, the distinguished newspaper publisher, Mr. John Cowles, who in 1955 addressed those celebrating the centennial of Pennsylvania State University as follows:

> First it is inevitable that in the immediate and continuing future the responsibilities and scope of the Land-Grant institutions are going to be immeasurably larger than they have been, not only actually but also in relation to the other segments of our over-all educational system.
>
> Second, if the Land-Grant institutions should fail, quantitatively or qualitatively, to play to the full the role which destiny is assigning them I doubt that we will have a free society and a democratic form of government in the United States a century hence.

[4] Ashby, "Technology and the Academies," *Bulletin of the International Association of Universities*, February 1959, p. 37.

[5] Whitehead, *The Aims of Education* (New York: New American Library, 1952), p. 26.

Can this country meet the responsibility of keeping educational opportunity open to the rapidly increasing numbers of its qualified young people?

President Henry of Illinois gave a graphic illustration of the answer in a recent talk in which he commented on three articles in the same issue of a nationally circulated magazine. The first article was by a distinguished economist who predicted a rapid rate of economic growth in the next decade, with the pace being substantially accelerated in the second half of the period. The second article analyzed what people are spending their money for now. It indicated record spending for travel, hobbies, luxuries, and "good living" and stated that people have more money for these things after necessities are paid for than ever before. A third article in the same issue referred to a "taxpayers' revolt" in one locality, and to the increasing problems of city and state governments to get sufficient money to carry on education and other public services.

How mixed up on fundamentals can we get? How wide can we make the gap between what we know we need to do and what we do? Are the young people now in our nursery schools, grade schools, and high schools to be the truly lost generation so far as higher education is concerned? Must we wait for another and another and another demonstration by the Russians that they have well learned the lesson of the value of education and research before we make the really major breakthrough in educational support that is needed in America for Americans? Do we really have less courage and foresight than the man of a century ago who launched the land-grant movement in the midst of civil war and inflation?

The answer is, of course, that the public—and by the public I mean millions of individuals—through their own mental processes must somehow be made to understand the importance of vastly increased expenditures for education from both public and private sources. This is not a task for educators alone. It will be better accomplished to the extent that it is not done by educators alone.

At the same time, all those of us in some way connected with education must have a sense of urgency about these things, not because they are in our own interest, but because they are in the national interest, in the interest of the future of all our children. If we acquire that sense of urgency; if all the trustees, administrators, faculty, and students understand what we need to do and why we need to do it, and will then communicate our urgency to everyone with whom they come in contact, we will have the vast majority of the public with us in doing what needs to be done. Or we will at least have the satisfaction of knowing that the responsibility for failure lies elsewhere.

Until we acquire that sense of urgency, we err in laying the blame for inaction at other doors, on the failure of businessmen and legislators and farmers and others to realize the importance of education. We are in the position immortalized by Pogo in this phrase: "We have met the enemy—and he is us!"

The Three Great Callings

FRANK H. BOWLES

THE THREE great dedicated callings of our time—the religious, the military, and the educational—we have come to take for granted, for they are part of the fabric of our life. Because we take them for granted we have, almost absent-mindedly, classified them as three among the many professions which manage our institutions. These include such old and honored professions as medicine, law, engineering, and the skilled practice of the arts; also such newly recognized professions as management, social work, journalism, public administration; and, perhaps, the newest of all, that of the management of opinion with all of its subdivisions, such as the direction of the great mass communications media, radio and television, and the controversial areas of advertising, public relations, and opinion analysis.

In a technical sense this is a proper classification, for all professions have in common the characteristic of being based on a body of specific knowledge and doctrine, the selection and training of practitioners through a long apprenticeship, and the final attainment—professional skill and the assumption of responsibility for specialized judgment and decision. Yet these are distinctions which override technical similarities. The professions that I have just enumerated are, in a sense, the product of an organized society. They are related immediately to the needs and problems of individuals. They have the purpose of easing our lives, though sometimes they trouble them too. They supply services that are available at need, and they supply comfort and personal opportunity to those who practice them. But valuable, even necessary, as they are to a smoothly functioning society, they do not control the stability or the nature of a society, nor do they touch the fundamental needs of individuals for security. Nor are they necessary for understanding man and his temporal environment or for attaining the spiritual understanding that we call forth. These functions are reserved for the three great callings that support our society.

It is certainly neither chance nor imitativeness that has molded these callings into similar structures. They are hierarchical in form. This means that the growth of the professional skill and knowledge of any individual who enters these callings is denoted by a grade, a title that we call a rank, and that these ranks have a universal meaning not only within a given society or culture, but within any society or culture, for these professions have similar characteristics in all societies and cultures.

Each is controlled by a rigid and traditional discipline that includes the subordination of the individual to the requirements of his profession as a whole. And the profession vests judgment concerning the requirements of its practitioners in those of senior rank. This, in turn, involves the acceptance of limits on personal reward and, in effect, allows rewards only in terms of increasing responsibilities and ever-deepening dedication.

In return for placing himself under discipline, the individual is granted security within a life that is necessarily modest and often supported on a level that is perilously close to subsistence. But he is also granted the priceless assurance of accomplishment in service, and, if he is unusually fortunate, he may

come to know the tremendous satisfaction of being an instrument for the introduction of some new idea or element into the social structure. Thus, the religious calling has introduced such great concepts as the stability of the family, the responsibility of the individual for social behavior, and the community of man in the sight of God; the military calling has introduced the idea of group responsibility for security, and, as a product of military art, has developed the great profession of engineering on which so much of our contemporary society depends; while the teacher has, over generations, worked unceasingly to affirm man's insight into knowledge and the free use thereof, and, if he has not succeeded totally, he has, at least, established literacy and the idea of cultural heritage as basic concepts that are acknowledged and accepted even in the most illiberal societies.

Because the three callings are at the same time hierarchical and disciplined, they are also conservative. Dealing as they do with the foundations of society, they move slowly in response to pressures for change. And it is right that they should do so, for many such pressures have appeared for relatively brief moments in the long span of human history, expressed their urgencies, and then disappeared. Whitehead has pointed out that true change is a slow process and that it may take a thousand years for any truly new idea to be accepted within large social structures. Thus, such ideas as that of universal literacy, or that men should have voice in their temporal governance, or that men should live in peace and love their neighbors, are not yet accepted throughout our world even though they have been a part of the common currency of thought for more than a thousand years.

These are callings that have their roots deep in history and, indeed, are historically oriented to an extent that is true of no other professions. They are today essentially dedicated to the service of society, and yet their histories are longer than the history of any other organized segment of society as we know it. Indeed, each of these callings has been indispensable to the development of nations as we know them and has, out of its own organization, discipline, and concept of service, contributed the basic elements of stability on which nations have built the idea of the state as the servant of its people.

These callings have been responsible for the basic ideas of professional training and service on which all our professions now rest. They are, even now, unique among professions in that they are self-sufficient in the management of their own selections of new individuals to enter their service and in the control of their own institutions for education and training.

It is worthy of note that these three callings, alone, of all the contemporary groupings of society, have retained their own special symbols of vocation in uniforms, vestments, and badges which set them apart from all other groups. These symbols are, in a sense, affirmations of continuity, for they may be traced in a direct line to the earliest emergence of the professions and are affirmations of the dignity and respect which are the strength of enduring values.

The definable characteristics that these callings have in common are matched by definable methods of approach to problems. All three professions have long since established that the proper method of approach to any problem, large or small, is orderly, logical, and calculated. But within their method lies the paradox that they are simultaneously affirmative and pessimistic. They are affirmative in that they always stand for positive purposes and goals: the religious in seeking to make man conform to the great designs of our Creator; the military

in seeking the strength that guarantees peace, and with peace, stability and security; the teacher in his dual mission of searching out and explaining the ultimate secrets of our life and environment. But they are also eternally pessimistic about their own achievements, alert to their failures, and always convinced that their resources are insufficient and their personal competencies and dedications are inadequate for the tasks at hand. Thus, the military can never be assured that they have the strength required for their mission; the teacher never has enough of knowledge, nor of the resources required to transmit knowledge; the religious strive always for greater faith and for greater works to affirm their faith.

Finally, in this catalogue of the characteristics of the three callings, are the characteristics evangelism and idealism. Their evangelism is an eternal expectation that the great truths on which the callings rest must be understood and can be understood if only they can be truly communicated.

From this it follows that the tasks of leadership in each of these callings have a continuing duality: on the one hand, they have the task of maintaining and strengthening the disciplined organization as a force in being, addressed to the tangible tasks and current problems; on the other hand, they have the task of gathering new strength by applying the skills that are inherent in what we call, prosaically, the behavioral sciences to the motivation and disciplining of new groups who will carry the greater responsibilities that lie ahead.

And these callings are idealistic in that each looks forward to a time beyond the present when all goals will be reached, all negations overcome, and all doubters converted, a time when men will achieve peace, unity, security, understanding, and salvation.

This view of these three great callings is, in effect, a form of inquiry into the human needs that brought them into being, that have maintained them through uncounted generations and have brought them to our time, still vital, still dynamic, still the solid foundation of our social order.

Now, to cast forward for a view of these callings in time to come, to find the only true certainty in the future of uncertainty. We do not know the shape of tomorrow's world. Indeed, we do not really know the shape of our present world, for there are few minds, perhaps none, that can grasp the enormity of the idea that we can now destroy in a day all that our race has built through all time past, and if we cannot understand this idea, we cannot truly know our world. We can be certain only that if there is a world of tomorrow, it will be built, as it has always been built in the past, on the foundations supplied by the three callings, which are here joined in one purpose. But even within this certainty we face uncertainty as to the challenges that these callings must face, the forms that they will adopt, and the new purposes that they must serve.

The religious calling is confronted with problems that arise from the paradox that we now have available and at hand the means to assure all men of the basic decencies of human life, including reasonable chance of being able to attain adult status, sufficient food, and a measure of social freedom. We are a long way from realization of each of these decencies, but we have seen them evolve from impossible hopes into evident realities in many regions. And even in whole countries we can see signs of still further changes to come, and we know that only political organization, or lack of it, prevents the general enjoyment of these basic decencies. The paradox lies in the fact that the tasks of the religious calling become more complex, but in a sense less direct, as a culture

moves from the terrible stability of subsistence to the mobility of affluence.

In a simple society, man's unity with God is a simple idea to be simply presented and simply accepted. In a mobile and affluent society simple ideas become obscured and overlaid in the action and turmoil of daily living, and the religious calling is required to penetrate into every stratum of the complex structure in order to continue to communicate the continuing simplicity of its basic premise. Thus the calling itself becomes ramified and complex as it adapts to its changed environment. Its unity and its purpose remain unchanged, but its tasks are subdivided into a range of undertakings that spans the tremendous distance from the devotional to the secular. In such a future it is impossible to overestimate the requirements for the discipline, wisdom, administrative skill, and understanding of the human heart that its chosen leaders must bring to their appointed tasks.

The military calling has before it tasks of comparable magnitude but of a different order. Military leadership has been defined as the management of violence, which is indeed a paradoxical definition, for violence always carries a connotation of unmanageability. Yet, until this time in human development it has been a valid definition. Now we are faced with the certainty that violence, if it is again released on a large scale, will be unmanageable; and so the military calling faces the need to reduce the amount of potential violence at its disposal through the complex arrangements that we call "negotiated disarmament." Yet, the hazards of total disarmament are unacceptable, and so the military calling continues, and must continue, in being.

In this strange situation military organization must become increasingly compact, increasingly skilled, increasingly disciplined in order to avoid tragic error, and also must become increasingly dedicated to its basic purposes. We begin now to see the new form that this honored calling must accept. It is the form of compact force, equipped with the finest products of our technology and skilled in the use of those products in that truest of all forms of defense of security, the advancement of human welfare.

This is no new role for our military calling. Military engineers opened our nation for settling and exploring and the building of bridges, dams, railroads, and canals, including the tremendous achievement, the Panama Canal. Military medicine conquered the worst of tropical diseases and opened the tropics to comfortable human habitation. Military administrators controlled the greatest scientific achievement of the century in the opening of the atomic age, and military engineers and scientists are now exploring the edges of outer space, even as others explore the depths of oceans, and the polar boundaries of our known world. These facts are not new to any of us, but taken together they are a magnificent proof that the military calling, as we know it, serves greatly, whether in peace or in war.

It may well be that for the military calling of the future, arms and armaments will become secondary, and the primary task will be the undertaking of enterprises so great as to be beyond the reach of ordinary undertakings. The exploration of space may be the most glamorous of these tasks, but the pioneering of new methods of communication and new vehicles for transportation, the testing of new materials, and even the guidance and supervision of major engineering undertakings in underdeveloped countries may have more immediate importance for our time. But whatever the assignments and undertakings of the period may be, we have the certainty that the military calling, under its dedicated leadership, will

hold to its skills, its purposes, and its disciplines.

Finally, we come to the calling of the teacher. The forces, social, scientific, and technological, that are changing the religious and the military callings are changing our education almost before our eyes. The average child born in 1900 in America could hardly have expected to finish grammar school. The average child to be born in 2000 may expect to finish college. The eight years of schooling that lie between these two averages represent social, financial, and psychological changes such as the world has never seen before. The change we know, intense and dramatic, is in some measure reflected in every part of the globe. It is a change that will place heavy strains on the structure and the discipline of the teacher's calling. There will be knowledge to be sought, gained, verified, arranged, and presented. There will be new programs to be created. There will be new aspirations to be met and some old and tragic oversights and failures to be remedied. There are abilities and talents that lie buried deep beneath layers of prejudice, poverty, and neglect, as well as faults and problems of which we have common knowledge. There will assuredly be no shortage of tasks for the teacher's calling, but unless we can in the future practice our evangelism with more skill and fervor than we have ever practiced it, there may be a shortage of manpower.

Of these three great callings, the future offers the least tangible task to the religious, the most difficult task of readjustment to the military, and the largest task to the teacher. But, in a sense, the terms of reference to their future tasks do not affect these callings either in their own views of themselves or in such detached views of them as we are able to achieve. The importance lies rather in their purposes, for these are purposes by which our lives, our beliefs, and our faith are held secure.

A Junior College Changes Status

EUGENE E. DAWSON

This is an accounting of the procedures followed by a two-year college in becoming a four-year institution. Although related with satisfaction, it is not told as a success story—such an attempt would be abortive at this stage. Moreover, in detailing the sequence of events, circumstances do not allow for a discussion of some of the more exciting nuances. In fact, what is not said might make for more interesting reading, at times, than what is written!

Colorado Woman's College was actually founded and chartered as a four-year school. In 1920, because of circumstances that appeared to necessitate such a move, the school became a junior college and, as such, in the ensuing years received increasing recognition and distinction.

In recent years there had appeared to be some degree of interest in the college returning to its four-year status. Certain faculty members—in fact, some of the more able ones—student leaders, alumnae, and civic leaders had, from time to time, broached the subject, and it became obvious that in many instances their interest was more than superficial. It must be admitted, too, that the administration had a growing bias in favor of the four-year move. That any contemplated change of major proportions demands complete administrative concern and support does not require elaboration. Personal, as well as institutional, demands are too exacting for anything less than this.

During a period of nearly a year and a half attention given to a possible four-year program for the college involved little more than informal conversations, mostly among faculty. There were no formal or planned discussions of the subject.

The initial attempt to focus group attention on the matter was made at the annual fall faculty and staff conference in September 1958. During such conferences it had been customary for faculty and staff to devote attention to one or more timely topics of institutional concern. This particular conference marked the beginning of a two-year institutional study that was to embrace every aspect of the institution's program.

The first year of the effort was to be primarily concerned with a status study, or a determination of the current position of the college, while the second year was to be basically concerned with the question, "Where do we go from here?"

During the fall conference the faculty and staff were given an opportunity to vote on a number of matters, not for the purpose of determining policy, but rather to ascertain, in an informal manner, the depth of interest in particular areas. One item, among several, referred to the feasibility of a four-year program. The vote taken indicated a division of opinion. It should be added that this vote was taken after one of the discussion groups had spent several hours discussing such a possibility and had been given an opportunity to report to the conference.

Following the fall conference the institutional study continued to gain momentum. Institutional study committees, which had been formulated prior to the conference, continued to be active. Consultants were invited to the campus to meet with administrative officers, faculty, staff, and trustees. The consultants included Dr. Paul L. Dressel, director of

research at Michigan State University, who was to serve as curriculum consultant; Dr. James Doi, director of research at the University of Colorado, who was commissioned to assist the college with needed institutional research; and Dr. Robert Cochrane, director of physical plant services at the Colorado State College department of education, who was to consult with the staff in the area of physical plant study and planning.

The consultants were invited periodically to meet with the various study committees as well as with individual faculty members. It should be kept in mind that discussions of a possible transition to a four-year program remained of secondary importance to other considerations at this stage of the institutional study. The subject of transition, however, entered into discussions, as attempts were made to evaluate current programs and as questions were raised concerning future moves, even though the first year of the study was to have been primarily concerned with the current status of the college.

During this first year of the study two things happened that undoubtedly accelerated interest in further discussions of a four-year institution.

First, the college was provided with an opportunity to introduce a four-year medical technology curriculum in cooperation with a local hospital. It promised to be an economical program in that the hospital would provide additional staff and laboratory facilities at no cost to the college. The college administration and hospital representatives first brought the matter to the attention of the head of the science division of the college and the dean of faculty who, after conversations, introduced the idea to the science staff. After due consideration, a recommendation that the medical technology curriculum be adopted was submitted to the Curriculum and Instruction Committee, which, after study, recommended it to the faculty. After discussion, the faculty gave the matter firm endorsement. Subsequently, the Education Committee of the Board of Trustees and later the entire board gave the proposal unanimous approval.

It should be said that, even though the announcement relative to this new development came quite late in the spring and no special recruitment effort was attempted, ten or eleven students enrolled in the program during the first year.

When the decision was reached to inaugurate the four-year medical technology program, news releases carried announcements of the decision. Lengthy articles in the newspapers were devoted to this announcement, which, by the way, had both negative and positive results. For one thing, it was prematurely intimated that the college was taking the initial step in embarking upon a total four-year program. This impression created some misunderstanding on the part of some faculty and trustees. Clarification of the matter and improvement in communications became necessary. On the positive side, many persons who had been quietly hoping for a transition to a four-year curriculum were encouraged by this development and inspired by the amount of favorable response it had elicited. Supporters were heartened by editorials: one, entitled "A Far-Seeing Move," appeared in the *Denver Post* which read as follows:

> Colorado Woman's College is being very far-sighted in making plans now to expand to a four-year college in the next few years.
>
> The present school, which offers nearly 600 girls a two-year course, has made an enviable reputation among privately-supported institutions of its type.
>
> With the expected boom in college enrollment coming in the next decade, Colorado will be fortunate to have as many institutions as possible offering basic college education, if that education is of a high quality.

Unfortunately there will undoubtedly be some institutions expanding into mere "diploma factories," with neither the faculty nor the tradition to support their pretensions to larger size.

Colorado Woman's College, on the other hand, is the kind of school which should be encouraged to give the widest service possible. We hope that it gets broad community support for its four-year plans.

It is probably reasonable to conclude that the over-all effect of introducing the medical technology curriculum and announcing its adoption brought the institution one step closer to a four-year program.

The second event that undoubtedly had some bearing in precipitating further transitional developments was the offer by the North Central Association of Colleges and Secondary Schools to send two representatives to the college on a routine visit in keeping with the agency's plan to visit all member institutions. It seemed to the administration that such a visit, timed as it was, would occur at a strategic moment in the institutional study. Several months would have elapsed since the study began, and the anticipated visit of consultants from the North Central Association would serve as a real stimulus.

This is precisely what happened, and the visits of Dr. Robert Logan Nugent of the University of Arizona and of President E. J. Workman of the New Mexico Institute of Mining and Technology proved most profitable. The examiners were able to submit to the association a favorable report of the college and, while they were not visiting the institution for the purpose of determining the feasibility of a four-year curriculum, they were most reassuring in this respect. It is reasonable to say that, as a result of the North Central consultations, an increasing number of faculty and staff became more impressed with the possibilities of a four-year development.

A short time after the North Central visit, a conversation was held between the president of the college and the president of the Board of Trustees, at which time the latter suggested that it might be well if the whole four-year proposal could be thoroughly discussed and debated at an early faculty meeting and in subsequent trustee meetings. Such conversations would serve to clarify issues and strengthen lines of communication. The president of the college suggested that this might be in order at the fall faculty and staff conference in September 1959. Later a faculty committee, in planning the agenda for the conference, agreed to make this subject the primary topic of consideration. Those planning the sessions agreed that the president of the college should present to the faculty and staff a paper on the subject "Some Reasons Why CWC Should Consider a Four-Year Academic Program," and that Dr. Paul L. Dressel, the chief consultant, should discuss the subject "Some Ideas Regarding the Four-Year Curriculum," after which two full days would be devoted to discussion of the papers and related matters.

In his paper, the president first gave attention to college history, particularly as it related to the change from a four-year school to a two-year college, and he attempted an analysis of why the change became necessary. He also pointed to certain national trends in recent years in higher education.

Against this backdrop, he went on to cite some of the reasons for urging full consideration of the four-year pattern. He contended that the college could better accomplish its academic mission to the free world through such an expansion. He argued that a four-year program would provide a continuous educational opportunity for the student, rather than a highly segmented academic experience. He suggested that transfer

problems would frequently be eliminated.

He further suggested that there would be certain satisfactions and compensations that would accrue from the faculty and staff remaining with the student through four years of maturation and educational growth. Moreover, it was intimated that a four-year school would be in a position to attract a more substantial number of talented students. Again, it was argued that the alumnae of a four-year college would prove stronger and more responsive to the college program. And, again, it was brought out that, for a variety of reasons, faculty needs could be more adequately met: it should prove easier, in the years ahead, to recruit faculty and also to retain faculty; faculty salaries could be improved; teaching loads might prove lighter; and faculty fellowships should become more readily available.

Finally, it was the contention that one of the more basic considerations would be of a financial nature. Two-year institutions miss numerous financial and industrial grants because of their status. As a four-year institution the college should be able to expand its list of prospective donors. Moreover, college alumnae would not be so apt to have divided loyalties—this is a particular problem in two-year women's colleges where both the four-year institution and the alma mater of the husbands of those girls who marry compete with the junior college for funds.

Moreover, it was emphasized that because of the present size of the faculty and the unusual number of persons holding advanced degrees, including the doctorate, and because of the present facilities that the college already enjoyed, transition to a four-year program would not involve substantial expenditures.

The president concluded his remarks by saying that he did not envisage just another college, or just another curriculum. He believed that the mood of experimentation that prevailed among faculty and staff, their spirit of scientific inquiry, the able and devoted trustees and faculty, the willingness of all to cooperate and work together, and the wide support of friends in the city and region —these factors, and many more, would serve to assist the college in developing a program that would prove rather unusual, and certainly effective, in meeting the needs of women in today's world. He challenged the faculty and staff to manifest a willingness to take a fresh and objective look at this proposal.

Dr. Dressel, in his comments to the faculty, began by suggesting that the previous year's status study seemed to him to be a valuable analysis upon which to build for the future. He contended that he was inclined to believe that the development of a limited four-year program would be highly desirable for the college. He stressed the importance of the faculty being highly committed to such a move if such a transition were to prove successful.

Dr. Dressel then proceeded to discuss some of the so-called uneconomic aspects of the current college program. He had discovered, through his analysis and consultations, that the college was currently offering an unusual number of credit courses and hours. It was his feeling that there was a considerable amount of overlapping and duplication of courses, and he cited concrete illustrations. He attempted an analysis as to why the proliferation of courses had taken place.

Dr. Dressel then went on to cite the number of courses that had an enrollment of six or fewer students. He pointed out, too, that there was a real need for reviewing all the courses in the curriculum with the intent of combining or dropping duplicating or unnecessary courses that were taken by relatively few students. He suggested that an effort be

directed toward developing courses that would be suited to the character of the college rather than paralleling courses offered elsewhere. He also argued that educational experiences of the girls be increased. Moreover, he pointed out that consideration should be given to courses that might better be offered at the junior or even the senior year. Finally, he suggested that the already-mentioned steps of eliminating or combining courses or sections would materially decrease the number of courses or sections having fifteen or fewer students.

Dr. Dressel indicated that all the preceding steps should be undertaken by the college, whether or not a move was to be made to a four-year program. However, he insisted that these same considerations were also relevant to the development of the four-year program.

Without going into detail regarding Dr. Dressel's tentative curriculum proposals, it should be pointed out that he proposed for faculty consideration that 50 percent of the student program, or roughly 60 hours, should be devoted to general education, and that 25 percent, or 30 semester hours, be devoted to what he tentatively termed "vocational minors"; that 10 percent, or 12 semester hours, be designated for "home and family living" courses, leaving 15 percent of the course work, or 18 semester hours, for electives.

It should be said that Dr. Dressel was interested in having the general education core, including courses in the humanities, fine arts, social sciences, and natural sciences, extend all the way from the freshman through the senior year. Some of the so-called "vocational minors" to which Dr. Dressel gave attention were in such fields as business, elementary education, home economics, journalism, medical technology, and music.

Dr. Dressel recommended that in moving to a four-year pattern, the college think in terms of increasing its student body from the current 550 to 750 students by 1963.

He pointed out that this should not necessitate a substantial increase in faculty and staff. Although the increase in student body would probably necessitate adding some new facilities as substantial numbers of students were added, the increased enrollment would, in turn, result in additional revenue for the college, and thereby not produce serious budgetary problems. A new library, of course, would have to be built with the aid of gifts for such a purpose.

The faculty and staff gave attentive consideration to these papers and asked many questions. After much discussion, the dean of the faculty asked for a secret vote on the proposal that CWC take further steps in exploring the proposal for a four-year program. The final vote was sixty-two to three in favor of doing so.

The favorable result was reported in an informal way to the college trustees at the annual trustees' outing given by the president and his wife. At this time, both Dr. Dressel and the president presented summaries of their papers, which had, by the way, been forwarded to the trustees several weeks earlier. Opportunity was then provided for questions and discussion, but no official action was requested or expected. The response, however, was encouraging.

During the ensuing months, much faculty discussion and action, both in committee meetings and in general sessions, took place. The Education Committee of the Board of Trustees met for the purpose of discussing the matter. At the October meeting of the Board of Trustees considerable discussion of the subject took place, and the board took the following action:

> That CWC should undertake the orderly consideration of a four-year academic program and authorize the faculty to proceed with this development, subject to the fol-

lowing conditions: (1) that the concept of two-year degree offerings be retained; (2) that course proliferation be avoided; and (3) that the program be developed on a sound economic basis.

In the opinion of the writer, this was a wise and sound directive from the board and one which should be chimed more frequently on our campuses. It should be added that these requirements have been kept constantly in mind as our four-year plans have evolved.

This decision of the board resulted in greater faculty motivation and involvement over the following weeks. One of the most important developments during this time was the offer on the part of the Commission on the Education of Women to send a team of consultants to the campus to counsel with administration, faculty, and trustees.

The college profited greatly by the services of Mrs. Esther Raushenbush of Sarah Lawrence College, Dr. Franc L. McCluer of Lindenwood College, Dr. and Mrs. Lawrence S. Bee of the University of Kansas, and Dr. James E. Perdue of the University of Denver—all of whom had the enthusiastic support and assistance of Mrs. Opal David, director of the commission.

Trustees were invited to participate in one of the major sessions, and it is the feeling of the writer that considerable progress resulted. It should be pointed out that the commission, in sending consultants to the institution, made it clear that it was not taking a position one way or another on the four-year proposal.

It was in mid-January that the dean of faculty, Norman B. Dodge, who had worked long and effectively on the assignment, called a faculty and staff meeting to hear reports and recommendations that might be submitted to the trustees, who were to meet a few days later. The "new curriculum" was submitted and given overwhelming approval.

At the January Board of Trustees meeting, the president of the college invited Dr. Wallace B. Turner, head of the Division of Social Sciences, chairman of one of the important curriculum committees of the study, and a long-time member of the faculty, to make the report to the trustees. Following the presentation, the president of the board took the initiative in raising a few pertinent questions, after which a brief discussion took place. Key members of the staff, always in attendance at board meetings, were available to answer questions. Soon a motion to authorize a four-year program was entertained, and the motion carried unanimously.

Thus, after forty years as a junior college, the institution has reverted to a four-year status and expects to graduate its first class in 1963.

The announcement of this significant move has been given widespread attention and has elicited favorable response. The *Denver Post* once more commented editorially as follows:

> The decision of Colorado Woman's College to offer a four-year program is a heartening sign that an important part of our educational system is busy gearing up for the challenge ahead.
>
> Beginning with its present freshman class, CWC will offer its students a baccalaureate degree in the liberal arts.
>
> To do this it must plan for a substantial plant expansion, including a new residence hall, a library building, a dining hall addition, and a maintenance building.
>
> One of the most alarming statistical gaps in America is that between the number of parents who say they intend and can afford to send their children to a four-year college and the numbers of those children that the colleges can possibly absorb *at their present capacities.*
>
> Unless a great many more small schools with sufficiently high standards make the CWC decision, that gap will never be closed in time.

A word is in order concerning the nature of the new baccalaureate degree

curriculum. A liberal arts major will be given central emphasis throughout the four years, with no break between upper and lower divisions, and there is to be no narrow departmental major. The liberal arts major, embracing appropriate courses in the humanities, fine arts, social and natural sciences, is expected to require sixty-eight hours.

The remaining work required for the baccalaureate degree may be used for the further enrichment of the student's basic curriculum or for the development of a selected field of vocational concentration. These fields, as presently listed, include art, dramatic arts, elementary education, foreign languages, home and family living, journalism, literature, merchandising, music, natural sciences, psychology, secretarial studies, and social studies.

The college will continue to offer the associate in arts degree to students who satisfactorily complete the requirements of a two-year program.

In retrospect, it would appear that there are several important factors to be kept in mind when an institution considers a move as decisive as the one just described. In summary, they are: (1) In general, the institutional climate must be favorable to such a move. Interest and dedication, particularly on the part of key people, are imperative. (2) There must be administrative, faculty, student, alumnae, trustee, and community involvement, the degree of involvement, of course, varying from group to group. (3) Open and frequent communication is essential. (4) Research into locally prevailing conditions, as well as into national trends, is a requirement. (5) The rationale for such a program should be one that is academically sound. (6) Any change being considered should be economically plausible. (7) Consultants who are qualified by successful experience and by nature should prove invaluable to the institution. (8) Proper timing in developing the concept and in implementing the program is important. (9) Publicity, well-conceived and with good timing, should prove helpful. (10) There is always the arduous assignment of implementation.

Only time will determine the extent to which one school has met this responsibility. Meanwhile, we are dedicated to the task that is before us.

Measurement for Educational Policy

DEAN K. WHITLA

EVALUATION, in a most fundamental sense, is necessary for reality. Without the information we gain from our environment, and the feeding-back of this information into our system for correction, there can be no reality. This has been dramatically illustrated under experimental conditions: if all the influences of the senses are removed by placing a person in a booth so that he can hear nothing, see nothing, and feel nothing, he will exhibit neurotic symptoms. Our perception of reality is constantly being corrected by what the engineer calls "feedback." For example, when a man buys a new tie, he may think it is conservative and in the best of taste. But when he arrives home with it, his family may see it as quite gay, and when he wears it to the theater, he may overhear the comment that it is positively loud. Whether or not he chooses to wear it again is up to him, but, in any case, he will obviously have to alter to some degree his thinking about the tie.

Our ideas, our speech, our behavior, are evaluated and re-evaluated on the basis of this principle of feedback. Feedback is necessary to establish reality for us, and it generally constrains our activities, but only if we allow it to do so. Our friend may well wear that loud tie again, but now he will do so knowing the response it will bring.

The social psychologist Norman Cameron views putting oneself in the place of another (his phrasing for what I have been calling feedback) as a bridge between normal behavior and pathological behavior.[1] Or, if we examine learning theory, we find additional use of this concept: the Hullian formulation, based on drives, cues, responses, and reward followed by reinforcing or extinguishing properties, contains this common element in a different nomenclature.

Changing our sights now from the individual to the group, and, in particular, to the college organization we realize there must be feedback if the college is to serve an educational function. In a very real sense, we need in our colleges and universities this same kind of evaluative and corrective influence to establish the educational frame of reference. Every day, on an informal basis, this process operates. The professor gets feedback from his lectures with every "Would you repeat that, Sir," and "Your statement does not agree with the opinions in chapter 4 of the text; would you clarify this"; and also from high absenteeism and the D grades on the mid-semester examinations.

George Herbert Mead, the late renowned philosopher and psychologist of the University of Chicago, considered feedback a measure of the effectiveness of individuals in group situations: the individual perceives himself as other individuals see him, and then in terms of a generalized "other." This, Mead calls the source of adaptive behavior.[2] In this adaptive sense, outstanding professors differ from poor ones. For example, those who ignore the training that students have when they enter class often teach too fast or too slowly.

In the university community the in-

[1] Cameron, "Role Concepts in Behavior Pathology," *American Journal of Sociology*, March 1950, pp. 464–67.

[2] A. R. Lindesmith and A. L. Strauss, *Social Psychology* (New York: Dryden Press, 1949), p. 178.

formal feedback we get from alumni, from graduate schools, and from industry, keeps us tuned to reality. But there are marked limitations to such informal approaches. The professor generally hears only from a biased sample of his students, and his perception and evaluation are based on his own personal frame of reference.

What we need, then, is a more formal system of evaluation and correction—one that samples systematically, one whose results allow purposes and aims to be examined and then permit evaluations to be evaluated. Why do not most schools have some formal machinery to handle this problem? For one thing, the informal method is extremely sensitive, like the relationship between husband and wife, counselor and counselee, speaker and audience. You do not need to give a test or circulate a questionnaire to know when rapport has been lost. And informal feedback provides great freedom for autonomy. The news release from the president's office in response to inquiries about national educational policy, the admission pamphlets for college counselors in the secondary schools, the departmental requirements for graduate degrees, are all illustrations of responses to certain problems and needs, each response being independent of the others and yet all concerned with one fundamental problem, that is, establishing and continuing the best conditions for education.

More formal procedures have often been frowned upon. Public criticisms of measurement techniques by a few well-known men have not helped to endear formal procedures to the academic society. Acknowledging for the moment a few of these criticisms, we find that Sorokin has written a powerful, albeit exaggerated, attack on testing.[3] William Whyte vehemently and effectively pointed out the limitations of industrial testing.[4] Banesh Hoffman made a pseudo-scholarly and harshly critical evaluation of college entrance testing in the *American Scholar*.[5] While we can dismiss some of their specific statements as irrational and uninformed, we must in the same breath acknowledge that their basic theses, that tests do have weaknesses and that the results are often improperly used, are valid ones. We must further acknowledge that we, as test administrators or users of test scores, have not been sufficiently sensitive to the limitations in interpretation that exist in our work. Like the man who knew his tie was loud and who, therefore, should not have been surprised, upon wearing it again, that he did not receive acclaim for sartorial distinction, so we who have ignored the limitations in testing must not be surprised at attacks upon these weaknesses.

But rather than try to justify our past, I would like to set forth what I believe is the proper use of testing and measurement, acknowledging, if you will, that feedback has a place in our own work. In exploring the boundaries and horizons of measurement, we must always keep in mind that our techniques are objective; this allows us to transcend such problems as personal involvement but, at the same time, limits use of measurement in an educational process where value judgments are essential. For instance, before President Eisenhower appointed Mr. Herter as Secretary of State, he was judged by doctors as being physically able to handle the job—this is a rather obvious example of a necessary, but not sufficient, condition for being Secretary of State. The techniques of measurement in general and the use of test scores specifically

[3] Pitirim A. Sorokin, "Testomania," *Harvard Educational Review*, Fall 1955, pp. 199–213.

[4] Whyte, *The Organization Man* (New York: Simon & Schuster, 1956), pp. 171–201.

[5] Hoffman, "'Best Answers' or Better Minds?" *American Scholar*, Spring 1959, pp. 195–202.

are in the same way necessary but not sufficient criteria for judging the outcomes of education.

As in testing, the measurement techniques used in studying instructional and administrative problems must always be thought of as an aid to the faculty, not as separate methods that operate independently of the faculty. To be most effective, they must constantly be geared to the problems the faculty faces. It comes back to the fact that measurement must always be the servant, never the master. What has caused many of the problems in measurement is that some of its proponents have felt it to be too encompassing. What could not be measured, what was qualitative, was ignored. The results of measurement must be fed back into policy, so that they may serve in the correction process after they have helped to illustrate existing situations. They should not lead policy, but should serve the men who are responsible for policy-making. Measurement does not, in itself, constitute any system of values; it is an objective tool which can be used for good or for bad. It cannot make the value judgments necessary for running a liberal arts college.

In summary, I have been proposing that we keep two principles in mind: (1) feedback is necessary for education, and formalized feedback should supplement informal feedback to provide a sounder basis for evaluation; (2) data from measurement and testing constitute necessary but not sufficient criteria for educational evaluation.

I would like to turn now to studies in which I have been involved and in which I have attempted to use measurement in the way I have described, the way I believe measurement can make its best contribution to administrative and instructional functions. I have chosen several studies that illustrate how measurement can be applied to problems which range from admissions through the college years.

Using language tests for placement in the elementary courses has been standard operation at Harvard for a number of years. We have recently added a listening test for sectioning purposes in French 20, a literature course in which lectures are given in French. To constantly re-evaluate the standards we have established for our second-year courses, we examine with placement tests those completing the first-year courses, so that new freshmen are recommended for second-year courses for which they are as well prepared as those completing our elementary courses.

For a few years the scores on the German tests given at the end of the first year of college language study had been progressing steadily upward and were considerably higher than they had been at the time the tests were standardized. Both the Office of Tests and the German department were concerned about the cause of these higher scores: were these increases primarily a function of increased knowledge of the language, or were they the result of undesirable influences?

In a preliminary examination of the tests, their security, methods of administration, and original standardization all seemed satisfactory. Therefore, our study of the problem focused on differences in the abilities of students enrolled in the courses from year to year.

In our elementary German A course, the median test scores of three classes studied had increased on a College Board scale 25 points in five years. And with this increase there had also been corresponding improvement in median Predicted Rank List.[6] Converting the change in Predicted Rank List into achievement score equivalents, we found

[6] Students' grade predictions based on their CEEB scores and secondary school records.

that the ability of the students had increased considerably more than had their German scores. The German score increase was 25 points; the PRL equivalent was 122 points. A corresponding increase in student ability was found also in higher-level German courses.

Since scholastic ability, and specifically verbal ability, as we had measured them at admission, had increased during these years at a much faster rate than had the scores in the German achievement test, we felt the increase in the latter could well have been a reflection of greater knowledge on the part of the students. Certainly the magnitude of the change in the aptitude scores reduced by comparison the change in the German scores. I might summarize by saying that the concern over the increasing mean German achievement scores shifted from one about too much change to one about too little.

The responsibility for integrating curricular with many of the extracurricular activities at Harvard has been placed in the houses, which are designed to be a force in education rather than simply living accommodations. The staff of tutors associated with each house tends to 'formalize the houses' educational functions, since they conduct tutorial sessions at the houses. Last fall the Office of Tests was requested to prepare a series of tabulations on the honors programs in each of the houses.

Using the Predicted Rank List and freshman grades as controls, we determined for the natural sciences, the social sciences, and the humanities, the percentage of students in each house who were following an honors program, as compared with the percentage of students eligible to do so. Differences among the houses did exist.

House staffs then studied the material with the purpose, to use House Master Leighton's phrase, of "finding pockets that were being overlooked." All students with the necessary grade averages have the opportunity to participate in the honors program, and where discrepancies among the houses became evident in the number of those eligible and those so engaged, the way was opened for discussions of the favorability of house climate for drawing students into the honors program.

Dean Monro has aptly called this "educational bookkeeping," and such data, he feels, should be part of the college's permanent records.

To see an example of collecting information that can be useful in evaluating departmental policy, we will look now at a course requirements study.

To ensure that all students acquire breadth as well as depth in their education, they are required to take a series of courses under the Harvard plan of general education; these requirements plus those of the department still allow a degree of freedom in the choice of the rest of the program. To examine the pattern of courses actually followed by concentrators in the departments, we compiled the number of courses taken in each department in the area and in the general education program. In addition, we separated students in the larger departments into upper-level and lower-level groups on the basis of junior grades.

The results indicated that: (1) concentrators who take more courses outside their departments and area are those in the natural sciences—the humanities concentrators, using course distribution as the basis of evaluation, have the least-rounded program; (2) students who tend to take more courses within their departments are the more able, rather than the less able, students. These conclusions tend to refute the common statement that our natural sci-

ences concentrators obtain a narrow education and, further, that it is our able students who, secure in their abilities, sample widely among the college offerings. Such findings can be helpful in considering the effect of legislation concerning course distributions in the different areas and provide a factual background for considering changes in such legislation.

With the enactment of any educational policy, it becomes necessary to assess it, for such legislation can have completely unforeseen effects and countereffects. As an example of how measurement techniques can help in illuminating the effects of such legislation, I would like to describe briefly a study done in my office last year.

The regulations governing the granting of highest honors degrees at Harvard College provide for a broad degree of freedom in interpretation at the departmental level. Looking retrospectively at the policy, I am sure that it was designed to free the faculty to select their very outstanding candidates without being bound tightly by grades. They could then use other measures of evaluation such as theses, orals, and comprehensives in singling out gifted men for the highest awards. The feedback, expressed informally for several years, was crystallized in a letter to the dean of the faculty from a faculty member in the social sciences, stating that it was clearly evident that the departments in the natural sciences were the most generous in recommending students for highest honors.

Since grades are the common measure of a student's four-year academic performance and are accepted as a primary criterion (and in some departments as the only criterion) in recommending students for highest honors degrees, we tabulated the grade averages for highest honors graduates of the five classes studied. The percentage of highest honors awarded in the areas did not correspond to achievement reflected by the grade averages. The lack of correspondence was a function of two factors—grade distributions and cutting lines, the latter being the more significant.

Working with indices of student potential and ability (Predicted Rank List and the Scholastic Aptitude Test, the Verbal and Mathematics sections), we found that the number of able students in the social sciences and in the natural sciences was about the same and that the number in each of these areas was much larger than the number in the humanities. The percentage of highest honors degrees awarded to the able students in the social sciences was far lower than the percentage awarded to able students in the natural sciences or the humanities, a fact which confirmed the feelings expressed by the social scientists.

Some departments that have several requirements for honors, such as theses, generals, and/or orals, gave great importance to them in their selection processes. Other departments, although having these requirements, used them primarily as learning devices and not as selection criteria, since no one during the period studied had been excluded on these grounds. Every department we studied that used these requirements as criteria gave a small percentage of highest honors recommendations to their able graduates as compared with that for their area.

It is interesting to note that, contrary to our original assumption (made from common sense rather than known fact) that when a department had used multiple criteria and had kept its percentage of awards high, it had done so by lowering its grade requirements, we found that these departments had in essence been using the additional requirements not as criteria but as learning

devices, and had been selecting solely on the basis of grades.

Obviously, the freedom for departmental interpretation of faculty legislation had resulted in some discrepancies. However, the relatively small number as well as the uniqueness, of students of this quality made extensive conclusions from this type of datum unjustified, especially on a departmental level. Therefore, the information made possible through measurement techniques was used only for alerting the faculty to these discrepancies.

Approximately one-fifth of the Harvard student body goes on to medical school, and for this reason the problem of admission to medical school is of vital interest to many of our men. About five years before we made our study,[7] Delmar Leighton, formerly dean of Harvard College, in the course of advising premedical students had undertaken a study of admission to, and performance in, medical school. His continuing concern for a coherent body of factual knowledge with which to supplant many general misconceptions had encouraged us to undertake this more extensive study. Medical schools were providing evidence that entrance requirements, as stated in their catalogues, did constitute their operational codes; that is, that more than the specified number of natural science courses was acceptable but not necessary for admission. The number of our students concentrating in the premedical areas had been increasing, however, and while the medical schools seemed to be showing more awareness of the importance of a liberal arts background, our men seemed to be moving in the opposite direction.

We studied, as a sample, 1,390 Harvard College students who applied for admission to medical school from 1949 to 1956. The American Association of Medical Colleges made available lists of applicants to medical schools and the schools those admitted chose to attend. The association also supplied additional lists indicating in which third of his class a student ranked. From this information, we could see the breakdown of the medical schools our men attended and could study their performances while there.

We examined the college records of these men by studying their concentration, grade averages, and number of degrees with honors. Then, since success in the Medical College Admission Test is part of medical school admission requirements, we tried to estimate its importance in the admissions process by tabulating the number of students admitted and rejected on the basis of scores on the four sections (Verbal, Quantitative, Modern Society, and Science).

Since, as might be expected, a very high percentage of students graduating from Harvard with honors were admitted to medical school, we were interested in determining whether the Medical College Admission Test was used in the selection of the more marginal candidates, the non-honors graduates. Our tabulations did indicate that for this group selection was made partly on the basis of their scores on the four sections. These scores were very significant in the selection of non-honors graduates at Harvard Medical School, important but less so at other schools to which we sent large numbers of students, and not a significant part of the admission process at schools to which we sent a small number of Harvard college graduates. This information could then be coupled with that on the importance of honors and thus used to provide our students with a better evaluation of the admissions probabilities. We already knew that if

[7] Dean K. Whitla, *Harvard Men in American Medical Schools* (Cambridge, Mass.: Office of Tests, Harvard College, 1958), II, 22.

a student scored high on College Board and other such objective tests, he would probably score high on the Medical College Admission Test.

Since almost 90 percent of our men who applied to medical schools were admitted, we hoped that by showing the large number of those who had undistinguished academic records but who nevertheless had been successful in gaining entrance, we could reduce some of the concern premeds often have in the selection of courses and in the courses themselves, and thereby could help them enjoy and benefit to the optimum extent from their college years.

One portion of the report was an analysis of the medical school grades of our students, along with a discussion of how these grades were related to their Harvard College records. Such an analysis makes it possible to provide information about the importance of a boy's college record in relation to his success in medical school, and consequently makes it possible for an adviser to be more realistic when answering questions such as "How well will I do if I go to medical school?"

I will now summarize a few of the most interesting findings of this study. I think the findings show how this kind of information can help confirm the conviction held by administrators and faculty of liberal arts schools that the man with the broad liberal arts background can more than hold his own at a professional level.

1. A student's chances of admission were not at all related to his undergraduate area of concentration.

2. The Medical College Admission Test scores seemed to have little importance in the admission of students who had received degrees with honors. The test scores were used primarily for selection of non-honors graduates, and then only at certain medical schools.

3. In general, premedical concentrators (those in chemistry, biology, and biochemistry) made the best first-year medical school grades. By the third year of medical school, however, concentrators in other areas had improved their rankings, but premeds still ranked highest.

4. By the third year, those concentrators in the social sciences who were attending Harvard Medical School ranked slightly higher than their premedical classmates.

5. In general, students who had graduated with honors received grades higher than the average for their medical school. The non-honors men received grades approximately the same as those of the average students in their medical school.

When we interpret these findings for the undergraduate who expresses an interest in medicine, we can tell him that he should concentrate in the area that holds the greatest interest for him. We feel confidence in telling him that it will be his record, not his concentration, that the medical school admission committees will evaluate.

It seems evident to those who study the role of our colleges in society that the functions of institutions of higher learning have been changing almost as rapidly as have other things around us, such as our standard of living, knowledge of science, and the international scene. This newer function, which I will for the moment characterize simply as one of preparing men and women to fill specific places in the complex of organized society, is influencing our colleges by forcing them to operate by many of the standards of the business world. As David Riesman has said:

> The changes both in our life and in our institutions of learning since Dewey wrote *The School and Society* in 1899 are such that the life outside, which he wanted to let inside, may mesh already too fully into our

schools and colleges, thereby curbing their role as centers of countervailing power . . .[8]

Many of the departments of our colleges seem to operate on the belief that the most important program they offer is that at the graduate level. Undergraduate training, like secondary school preparation, is really more important as a device for evaluating candidates than as an education in the liberal arts tradition.

Philip E. Jacob, in his book *Changing Values in College*, did not bring to us a surprising observation when he wrote that, except for a few potent colleges, little change occurs in values and attitudes during the college years.[9] Riesman tells us also that the days when colleges were trying to change our ways of life, make better men out of us, are gone.[10]

At the present time, measurement can provide no really adequate tools for investigating this area. Our attitudes and value scales are extremely limited in telling us precisely what system of values an individual holds, and certainly do not get at the reasons for his holding his particular position. However, it is precisely this last point that is central in any examination of the results of liberal education.

To provide a body of descriptive material about student experiences in the Harvard environment so that from this material some patterns of development could be traced and general evaluations through more formal measurement techniques could be made possible, we undertook a study of the average student at Harvard College. At this initial stage, we have gone no further than the descriptions.[11]

What the college should do for every prospective graduate is to help him develop those qualities of mind and sensibility that will mark him as liberally educated. Obviously, some of his experiences at college will help him to realize this ideal, while other experiences may serve to alienate rather than educate.

The program at Harvard College is designed to develop intellectual maturity and breadth of interest in students, whose capacities vary greatly. To study student experiences, we focused on the academically average student, since the level of this student in so many ways establishes the level of the college. Because the problem of what contributes to the development of liberally educated men, although always one of concern to colleges, has been the subject of very little formal research, results had to be largely descriptive. For this reason, we chose the interview as the method for collecting the data. We talked with each man of our sample (from the class of 1952, 45 graduates whose junior average grades fell within the 30th to 70th percentiles of their class), and, so that we might have an opportunity to examine in some detail what they said, these interviews were recorded and transcribed.

To obtain a separate evaluation of these men, we asked their house masters or senior tutors to rate each on qualities of mind and sensibility, regardless of academic-grade achievement. We made our own independent evaluations, which correlated .71 with the masters' ratings. On the basis of this correlation alone, it seemed that: (1) The house masters and the study were rating essentially the same qualities. And we might perhaps extend this to say that those qualities of liberal education that are often thought to be so difficult to define, therefore, are not completely elusive or unseen by the academic observer. (2) If those factors that function in making a man thoughtful and sensitive have not operated during the formative years at Harvard or

[8] Riesman, *Constraint and Variety in American Education* (Garden City, N.Y.: Doubleday & Co., 1958), p. 174.

[9] New York: Harper & Bros., 1958, p. 9.

[10] Riesman, *op. cit.*, p. 29.

[11] Dean K. Whitla, "Encounters with Education" (unpublished MS).

before, it is unlikely they will operate later.

Looking retrospectively at the backgrounds of these men, I see that we were unable to explain by their backgrounds the differences in their ratings. The differences seemed to be unrelated to such aspects as public or private secondary school attendance and type of family background. If these observations be true, they place even more of a burden on the college to influence its students through the quality of its education.

I cannot begin to summarize all the findings of this study. Distinct differences began to emerge in patterns of development of the high-rated men and development of the lower-rated men. We could see clearly the detrimental effect of "academic averageness" on those in the latter group in their reluctance and almost fear of approaching faculty and house staffs in a status that they felt was second rate. We could see that the average student, by not being at either extreme of academic performance, could exist without drawing the attention of professors and staff and, therefore, if any initial apathy or aimlessness existed, he could easily avoid deep personal involvement in his work. This in turn can result in feelings that college life and postcollege activities do not lead naturally one from the other, and college becomes an isolated experience.

On the other hand, when our academically average men overcame the psychological barriers of their averageness and made contact, social (in the house) or tutorial, with faculty members, came to know the faculty as men on the human level, and were guided into independent study, they obviously benefited much more from their education, conveyed more of the feeling that they had carried the tolerance and integrity of our system of values into their personal lives, and in turn were those men who generally received the higher ratings. However, the average man's contact with the faculty seemed too much the result of accident. One might wish for a kind of invisible net that might be spread around all our students to draw them into the fellowship of scholars.

To me, this is a fascinating topic, and the departure from measurement techniques after using them as means of choosing a proper sample and then of comparing that sample with the total class on the many variables in the records, seems more than justified by our results. Present measurement techniques, which are much more objective, are not as sensitive to the kind of material we were handling here. There are occasions when the person using measurement in his work is in the best position to realize its limitations and then to substitute methods more suitable to the problem at hand.

I have not discussed at length the use of tests for instructional purposes, for I feel that I have little to add to what *College Testing: A Guide to Practices and Programs* [12] has so well covered. I hope I have not overwhelmed the reader in trying to give the details of several years of work in these few words.

The data that accumulate during any one of these projects are indeed voluminous and are a challenge to anyone in his search for valid findings. The same discipline of mind and method that is necessary for scholarly research in any field must be applied in the area of measurement. Certainly the role that I have tried to illustrate here, is a new role, and, although at the moment it can make some contributions to colleges, it is still in the developmental stage. In this sense, however, it is an exciting area in which to be working.

[12] Prepared by the Committee on Measurement and Evaluation of the American Council on Education (Washington: The Council, 1959).

The Master of Arts in Teaching Idea

ERNEST STABLER

THE EDUCATION of secondary school teachers continues to be a matter of high controversy. Behind the debate it is possible to identify two sharply different traditions, two sets of assumptions, that have to do not only with the training of teachers but with the purpose and function of the American high school.

The first of these, which may be labeled "the academic," came from Europe and permeated the Latin grammar school of colonial days and the public high school of the nineteenth century. In somewhat modified form it is held today. In the college-preparatory secondary school the teacher's chief concern was to train his students' minds by seeing that they learned a given body of knowledge. Only those students who could develop the necessary skills to master the subject matter were permitted to continue in secondary education. The curriculum consisted mainly of mathematics, history, and the modern and ancient languages, because, in addition to providing the best vehicles for transmitting the cultural heritage, they served as the disciplinary studies, whose value lay in strengthening the learner's memory, training his reason, cultivating his powers of concentration, and disciplining his will.

These convictions about the purpose of secondary education determined a teacher's qualifications. Above all, he needed a thorough knowledge of his subject. Teaching itself was not regarded as a particularly complicated art, and the bright young college graduate could pick up ideas from experienced colleagues as he learned on the job. In time, the young teacher found ways of making his pupils behave and of imposing on them high standards of performance. Clearly, the academic tradition demanded no extended period of professional training.

The second tradition had its beginnings in the last two decades of the nineteenth century when the study of pedagogy and educational theory took root in American universities largely as a result of a similar development in Europe, particularly in Germany. By the turn of the century a campaign to include professional training as a necessary part of a secondary teacher's education was gaining support. The campaign was sponsored mainly by professors of education, but not simply for the purpose of providing themselves with a clientele.

The new notions about the education of secondary teachers were part of a larger movement of educational reform. John Dewey had opened his attack on rigidity and formality in education and was stressing the concepts of interest and activity. Edward Lee Thorndike, one of the pioneers in educational psychology, had undermined the basic assumptions of the old education by demonstrating that adolescents simply did not have "faculties" that could be exercised and trained through the disciplinary studies.

As the new education was winning disciples, high school enrollments were growing both in number and diversity, and secondary school men came to regard citizenship and health, social competence, and vocational training as valid goals. The task of the teacher thus became more complicated, and it was argued that he needed far more than academic preparation and on-the-job training. Professional educators and school superintendents, both loyal to

the new philosophy, succeeded in translating their convictions into state certification laws and in introducing courses in educational psychology, philosophy, and methodology into the collegiate curriculum. This represents the second, or professional, tradition in teacher training and is based on a set of beliefs about education, learning, and teaching quite different from those which underlie the academic tradition.

The present curriculum for teachers in most American colleges represents an uneasy compromise between the two traditions. It is now generally agreed that today's teacher needs a broad and liberal education through which he should gain a depth of understanding and a firm grasp of the tools of scholarship in at least one of the academic disciplines. There is also a large measure of agreement that he needs professional training too if he is going to deal adequately with the complexities of his task.

As to the nature and extent of that training there is something less than unanimity. In the 1,100 or more colleges and universities across the land that are approved for the training of teachers, the typical program covers four undergraduate years. Again typically, the curriculum includes both liberal and professional education in the ratio of 4:1. Students concentrate on the subject they will later teach: an English major, for example, takes ten courses in his field, each a semester in length; his professional training involves the equivalent of eight courses, each for a semester, and includes history and philosophy of education, educational psychology, curriculum and methods, and an extended period of half-day student teaching in high school classrooms. (These generalizations are based on an analysis of 294 accredited institutions.)

In recent years there has occurred a mounting criticism of the four-year curriculum that attempts to provide both academic and professional training. During the last decade a variety of graduate programs has emerged, among which is the Master of Arts in Teaching. The M.A.T. is a new degree in the academic hierarchy. It allows the candidate to continue his study of one of the liberal disciplines at the graduate level, to gain an understanding of the important issues in educational philosophy and psychology, and to undertake an apprenticeship or internship in teaching. The M.A.T. is different from the older master's degrees. It does not demand the specialization in one subject of the M.A., nor the heavy emphasis on professional education of the Master of Education.

The new idea was born at Harvard in 1936 with the active support of President Conant, who saw the need for a new kind of preparation for secondary teachers that would represent the views of both academic scholars and professional educators. Very little was heard of it for nearly fifteen years, but by 1951–52, 50 students were enrolled, and the program had the assistance of a grant from the Fund for the Advancement of Education. Yale opened its program the same year, and Wesleyan followed a year later. Brown, Colgate, Duke, Johns Hopkins, Mount Holyoke, the University of Massachusetts, and Vanderbilt have, among others, instituted similar programs in the past six years. Paul Woodring, consultant for the Fund for the Advancement of Education, has recommended Fund support for several of these and has indicated his own enthusiasm: "The eventual influence of these programs may be very great for it seems apparent that the Master of Arts in Teaching offers distinct improvement over traditional patterns." [1]

[1] Woodring, *New Directions in Teacher Education* (New York: Fund for the Advancement of Education, 1957), p. 54.

With its present 230 students Harvard's M.A.T. has the largest enrollment. This year about one-third of these young men and women are enrolled in the internship plan, which began in 1955 as a pioneer venture.

Interns who have graduated from accredited colleges enter the plan in late June and are based in a summer high school located in Newton and organized jointly by Harvard and ten school systems of suburban Boston. Junior and senior high school youngsters enroll for seven weeks and pay a tuition fee of $25 or more. Junior high pupils take work in several subjects that enriches but does not duplicate regular school year studies. Senior high pupils may take an intensive course in one subject and have it credited to their record the following year.

It is in this setting that the Harvard interns begin their teaching. During morning classes they teach under the critical guidance of experienced secondary teachers and Harvard School of Education faculty. In the afternoon they take courses, one in the principles of teaching, a second in curriculum and methods. In the following school year two interns are employed as a pair by one of the ten cooperating school systems. One intern teaches the first half-year while his colleague is taking course work at Harvard. At midyear they exchange places. Each is paid a salary of $1,700 by the school system. During his nonteaching term the intern takes at least three courses in his major field and one or two in education. In June, one calendar year after he began, the intern is awarded the M.A.T. degree and usually has in his pocket a contract to teach in a secondary school.

Students for the internship plan are selected with care. Candidates normally have achieved a B average or better in their undergraduate years and have majored in the subject they wish to teach. Through detailed application forms and interviews they are asked to reveal their previous work experience with children or adolescents and their commitment to teaching. They are interviewed also by superintendents of the cooperating schools before receiving appointments as intern teachers.

Selection of able candidates for both the internship and the apprenticeship plans (the latter does not include a summer session and requires an apprenticeship in student teaching rather than a paid internship) is made possible through a close relationship between Harvard and each of thirty eastern liberal arts colleges. These colleges have appointed faculty committees to advise students, evaluate applicants, and make careful recommendations to Harvard's admissions board. In these colleges more and better students are seriously considering secondary teaching as a career, and in the past ten years the number of graduates seeking admission has increased fivefold. On the matter of school-college-university cooperation Judson Shaplin, director of Harvard's program, has said, "The whole internship scheme represents an effort to bring together the colleges, the university and the schools in a joint venture: each has significant responsibilities, each must understand the others, and no *one* can do the task well alone."

A somewhat different approach to the M.A.T. idea is found at Wesleyan. Here, both one- and two-year programs are in operation. In some respects the latter is unique. Students supplement their undergraduate education by taking at least seven semester-length courses in the subject or subjects they will later teach. They do a trial run of classroom teaching during the first year and, after a period of reflection, use this experience to inform and improve themselves in preparation for a solid twelve weeks of full-time teaching in the second year.

Throughout the first three semesters each candidate spends several hours each week in such activities as dramatics, athletic coaching, youth club work, or scouting. These may be based in schools, churches, community agencies, or on the Wesleyan campus. Through them the M.A.T. student learns to reach the adolescent in informal situations and to develop skills which will provide an important bonus during his career in teaching. These activities form an integral part of the program but carry no academic credit.

Wesleyan believes that the young teacher should know his subject, how it may be taught most effectively, and to what end he is teaching it. All this implies that over a two-year period of preparation he will be challenged to integrate and find relationships among the several components of his M.A.T. experience. The extent to which the student has done this is discovered in an hour-long oral exam in the final weeks of the program.

The fact that these programs have flourished in such different institutions as Harvard and Wesleyan illustrates the administrative flexibility of the M.A.T. idea. At Yale, Brown, and the University of Massachusetts the programs are under the control of the Graduate School; at Johns Hopkins and Colgate they are operated within the department of education. Thus, the idea can take root in the small college as well as in the private and state universities. Growth and well-being depend, however, on several factors, not the least of which is the support and cooperation of the various academic departments. The very nature of the program implies the necessity of a joint effort between two camps that have traditionally glared suspiciously at each other: the liberal arts professors and the teachers of education. That they can cooperate has been abundantly demonstrated in the past half-dozen years, as they have shared about equally the class time of promising graduate students.

Although the programs differ in some details, each reflecting the character of its home institution, the similarities are striking. All actively recruit candidates during their senior year and select only the best qualified. Last year Johns Hopkins admitted 46 students from more than 200 applicants, and John Walton, director of the Hopkins program, has stated his policy in these words, "We've got to concentrate on getting superior teachers. These M.A.T. students are topnotch people who come to our program with a solid background in the subjects they will later teach."

A study made by Harvard of 49 candidates in the field of English revealed that 20 had been graduated with honors, four with high honors. Seven students in this group had been elected to Phi Beta Kappa. Yale advises its applicants that they must present evidence of "high achievement in the field of undergraduate specialization and must possess the personality and purpose requisite both for graduate work and for a teaching career in secondary schools." In spite of, or probably because of, these high standards the number of applicants increases each year.

Having secured such students, the various programs set about to challenge them intellectually both in liberal and professional education. M.A.T. directors are unanimous in their belief that educational theory and the skills of teaching can be analyzed through systematic study. A teacher should be expected to be well grounded in those phases of history, philosophy, and the social sciences that serve to explain the place of schools in contemporary society, the objectives of educational endeavor, and the complexities of the learning process. In addition, the teacher needs to know how to select the most appropriate elements from the great wealth of

his particular academic discipline and to develop a sound strategy of organizing and presenting this material.

Education courses, including the oft-maligned methods courses, can indeed have both content and rigor. Wesleyan, for example, offers a course in the teaching of English that is taught by a faculty member who has had teaching experience in the secondary schools. In one section of the course students discuss the teaching of the novel and focus their attention on *The Scarlet Letter.* They begin by making a thorough analysis of the novel itself, its structure, imagery, and symbolism, and thus put to use the tools of criticism they have developed in earlier English courses. Using this analysis, they organize a three-week teaching unit that includes a set of clearly delineated aims and objectives together with appropriate teaching procedures. Each student adapts his unit for different ability groups of high school pupils and thus faces squarely the need to plan different kinds of teaching for low-ability, average, and academically talented adolescents. The course deals similarly with poetry, drama, and the short story, and the students ask themselves, "What is literature?" just as frequently as they ask, "How can I teach it?" They do, in fact, come to see that the intelligent teacher cannot ask either question without asking both. Honor students report this to be one of the most stimulating of all the English courses they have taken, and one graduate now teaching in suburban New York has written back saying, "I can't tell you what a flying start English 81 gave me in my first year here."

What has happened to the students who have completed these programs in the last decade? Only fragmentary evidence is available, but it is quite clear that M.A.T. graduates tend to stay in teaching. Fewer than 10 percent of Wesleyan graduates in the past seven years have turned to other careers, and a study of 210 Harvard graduates over a ten-year period reveals that 76 percent of the men and 62 percent of the women were still at work in the field of education. These figures are, comparatively speaking, quite remarkable. A study of Illinois graduates who had prepared to teach found that fewer than 10 percent were teaching ten years after graduation.

M.A.T. graduates also appear to enjoy teaching. Eighty-three percent of a sample group of Wesleyan and Yale alumni judged the tone and atmosphere of their schools as good or very good, and an almost equal proportion similarly rated the responsiveness of their pupils. Nearly 80 percent were favorably impressed with both the social and intellectual atmosphere of the towns and cities in which they worked, and more than 75 percent reported that they were satisfied with community attitudes toward the school. One comment runs, "One thing that impresses me here [suburban Chicago] is that the profession has the prestige and dignity it deserves. The community regards both teachers and education with respect."

It would be a gross distortion to suggest that all of these graduates are fully content. Their chief irritations, however, if the Wesleyan-Yale sample is typical, are related to nonteaching duties. "It's the activity periods, the corridor duty, and the clerical load that oppress and frustrate me," said a junior high teacher. "We do not have the time to concentrate on marking and preparation." These irritations combined with the financial worries of men teachers with families are the chief causes of anxiety. Many of the married men are obliged to supplement their incomes with part-time and summer employment. On the whole, these teachers were satisfied with their jobs, their schools, and their communities. One of them remarked, "I can think of no other profession which offers the built-in guarantee for remain-

ing intellectually, emotionally, and spiritually alive."

Evidence of this kind suggests that M.A.T. alumni can find both challenge and satisfaction through teaching in secondary schools. But the total number of graduates is small—about 1,800 in the last decade. The number will increase in the years ahead, but these programs will not solve the teacher-shortage problem. There are several reasons for this. To educate a teacher costs money, a lot of money if it is to be done well. Scholarships and fellowships are necessary because teachers usually come from middle- or lower-middle-income homes. Graduate-level classes should be on the seminar pattern, and the student-faculty ratio kept low. Administrative costs are high because of the expense involved in recruitment, interviewing and admission, supervision of student teaching, and the placement of graduates.

Two major sources of revenue have appeared. School systems have begun to pay interns, and the foundations have been generous. Between 1951 and 1957 the Fund for the Advancement of Education granted an average of $4 million a year to teacher education, a good share of which was channeled to five M.A.T. programs. Last spring the Fund directed $11 million toward achieving a "major breakthrough" in the education of teachers, and again the M.A.T. programs were high on the priority lists. But these grants will not be made indefinitely, and when they expire the colleges may or may not pick up the bill.

Faculty staffing, particularly in the professional education phase of the programs, represents another major concern. In addition to extended graduate work and scholarly performance in his special field, the philosopher of education should know what secondary schools are like; the psychologist who teaches educational psychology should be familiar with today's adolescent; and the historian who directs the course on the teaching of history ought to have taught high school classes at some time in his career. Directors of the M.A.T. programs agree that these individuals are very difficult to find. The able teacher-scholar who is willing to devote his life to the teaching of teachers is rare in the American scene, and it is for this reason that the study of education has fallen into such low repute. Only through obtaining an increasing supply of top-quality faculty can these programs make a significant contribution to the improvement of secondary teaching.

Meanwhile, the M.A.T. program is enjoying a measure of success. It has won the cooperation of scores of colleges in recruiting able candidates for teaching careers. It has persuaded school systems to share in the cost of training teachers through the paid internship. And it has built a bridge over the gulf that for years separated liberal and professional education. While standing firm in the conviction that a rigorous study of educational theory is necessary for the teacher-to-be, the program has, in the words of President Griswold of Yale, provided a "massive infusion of liberal arts into the preparation of teachers."

The Campus Museum and Higher Education

ARNOLD B. GROBMAN

MUSEUMS, libraries, and universities had a common genesis in early circum-Mediterranean civilizations, and their developmental threads, sometimes indistinguishable, intertwine throughout the recorded history of Western civilization. This article consists of a few brief observations about museums on the campuses of our present-day American colleges and universities.

A number of questions about campus museums should be of interest to college presidents. Would a museum contribute to a quality educational program at my institution? If so, what should its functions be, and how should they be administered? Or, is the museum simply an historical accident on our campus, and are our energies being misdirected? What are the implications of the fact that, among the institutions with which we like to be compared, some do and some do not have museum programs? Answers [1] to such questions are readily indicated by a consideration of natural science museums, since they often have multiple responsibilities for research collections, teaching collections, display collections, libraries, exhibit halls, and classrooms.

There are an estimated 4,500 museums of all types in the United States with an average annual attendance of well over 60,000,000. The great majority of visitors are found in the halls of the large metropolitan museums and in the many small community and state museums. Although the campus museums do not draw a very significant share of museum visitors, these museums exert an influence out of proportion to the number of visitors they receive. They could be even more effective by participating vigorously in the training of museum administrators since, to my knowledge, few university museums now have such programs.

[1] The discussion in this article refers primarily to natural science museums, including geological and archeological museums and will be germane, to some extent, to historic museums; it is less applicable to art museums.

Exhibition activities

The major functions of a museum, as of a university, are education and research. James Smithson referred to those functions in his bequest to the Smithsonian Institution in directing that it be established for the increase and diffusion of knowledge. The exhibition activities are the best known of the educational functions. Exhibits can simply be rows of mounted specimens, preserved animals in liquids, or boxes of arrowheads; such exhibits are virtually a dead-storage collection in glass cases. At the other extreme are exhibits in which a few thoughtfully selected specimens are used to illustrate a series of visual or audio labels, with appropriate use of color and light, so that each series of displays communicates integrated, important, and accurate information. Both extremes of displays are found in college and university museums, and they comprise ineffective and effective educational activities. Of course if the display halls are not well attended, the exhibits, no matter how well executed, cannot affect very many people.

Colleges and universities, in planning their museum displays, should decide whether they are to be designed for adult visitors to the campus, undergraduate students, specialized students, school children, or some combination thereof.

Two considerations guide a number of university museums that consciously plan their exhibits for the general public: first, the students are essentially a segment of this general public, and, second, for the general public the museum serves as a showcase for the university. Obviously, many visitors who come to the campus cannot appreciate the educational program of the institution simply by looking at the exteriors of buildings. Appropriate museum displays can help to inform friends of a university or college about its significant activities and accomplishments. It might be effective, at some institutions, to plan for a close physical proximity of the museum's exhibit halls and a continuing education center which jointly would comprise a focal point for the off-campus visitor. In some areas the campus exhibit museum is regarded as a community and school service of sufficient value to compensate partially for the university's use of tax-free land.

Research collections

Museum research activities are varied and numerous. Fundamentally they depend on selective collections of archeological and natural history objects, and these collections are the raw materials for scholarly investigations. To this extent a museum is similar to a library. Both are storehouses from which new knowledge may be extracted. Both present to the administration difficult and ever-increasing problems in storage. Both require highly skilled professional personnel for cataloguing and maintenance. To continue the analogy further, the museum research collection areas correspond to the stacks of a library, although the exhibit functions are not clearly represented in the library operation. The library, however, has an activity that is now only poorly carried on by museums. The browsing room and circulation of materials to undergraduates are scarcely represented in the museum endeavor.

Thus, through its study collections the well-organized university museum provides excellent opportunities for graduate students and faculty to conduct research investigations, and through its exhibits it provides for the education and edification of the general public. In most instances, it does not provide a correspondingly effective service for the special needs of undergraduate students, and this is an area where much improvement can be made.[2]

To be a valuable and useful adjunct to a modern university, the research collections should be carefully organized and relatively extensive. The university should not lightly assume the responsibility of assembling research collections. The value of such collections increases with time and accretion, and an obligation once assumed is serious and demanding.

On American campuses a regrettable series of lapses, detrimental to both education and scholarship, is based on the failure of some colleges and universities to plan adequately for research collections and associated studies. Through their sincere enthusiasm, faculty members who are experts in particular groups of organisms or in phases of archeology have influenced teaching departments to assemble extensive and valuable collections. Research collections are as important to professors who are scholars in these fields as are microscopes, spec-

[2] For example, a campus museum could provide special study rooms for the high-enrollment courses that are concerned with visual materials. These rooms could be furnished with appropriate displays that could be changed during the academic year to parallel the progress of a course, with pertinent objects and materials that could be handled, and with an array of reference books. For out-of-class use, such rooms would provide a far better environment for the study of geology, biology, history, anthropology, or art than a dormitory room or a library reading room.

trophotometers, or cyclotrons to others. Often a collection laboriously assembled by a scholar, and from which he has been able to extract but a small part of the knowledge it could provide, becomes widely dispersed and lost to science after he dies or retires. Only rarely is provision made for the collection to be transferred to another institution that could effectively utilize it.

For example, in the biology department of a particular university there might have been an outstanding ornithologist who organized a fine collection of bird skins that formed the basis for a number of important contributions to the science. In the course of time, the ornithologist is replaced by a geneticist who, understandably, is not interested in that particular collection and who devotes his energy to his own studies. The department, with more pride of possession than sense of responsibility to education and science, attempts to keep the collection intact, even though the possibility of adding an ornithologist to the staff is remote. Gradually the skins begin to disintegrate, labels are lost, specimens are taken by a new instructor to use in the introductory biology classroom, other specimens are given to local high school teachers—and a once valuable scholarly resource is gone.

Such losses of significant research collections have happened too often on our campuses, and this suggests that teaching departments should not maintain extensive research collections unless there is a very clear procedure established for the proper care of those collections when the teaching department's interests change with time, as they normally and properly should. For the college or university to do less than this is for it to be negligent in a responsibility to education and science.

Interrelationship of museum functions

Important research collections of the type I have been describing are associated primarily with graduate student and faculty research and, by and large, should be housed in universities active in such fields. On the other hand, the exhibit activity can be associated with collegiate institutions of all degrees of complexity. Thus, museums restricted to an exhibit function would find a home on virtually all campuses, while museums with significant research collections would be located only at those institutions where they could be effectively utilized and indefinitely nourished. This would suggest that strong research museums be located primarily at large universities with active graduate programs.

It is not necessary that the exhibit and research functions of a university museum be housed together, although this is the prevailing pattern. While infrequently attempted, physical decentralization of museum research collections can have a number of advantages. If the circumstances are right, the various study collections can be separately housed in the appropriate departmental buildings devoted to the research and teaching activities of advanced students and faculty. For the reasons indicated above the administration of the decentralized collections should remain with the museum, rather than with the teaching departments.

Nor is it always necessary for a museum to have both exhibit and research functions. The educational programs of many colleges that do not sponsor an active research program can profit considerably from good exhibit museums. Occasionally at a large university there is a significant museum research activity without a corresponding exhibition program. This is true of the excellent Museum of Vertebrate Zoology at the University of California, which is one of the great centers for the production of knowledge about the systematics, evolution, and natural history of vertebrates. Apparently the exhibition function is not

regarded as important for that museum, perhaps because there is readily available a very excellent natural science museum with good displays (the California Academy of Sciences), across the bay in San Francisco.

By and large, universities in large metropolitan areas where good display museums already exist should not feel obligated to duplicate such efforts. If collections are also available at these museums, it may be well for the university to arrange for joint use of the collections, as, for example, Columbia University has arranged with the American Museum of Natural History.

Administration of a campus museum

The place of the museum in the organizational hierarchy of the university or college differs from campus to campus. At some institutions the museum is an administrative responsibility of the head of a teaching department and is simply an adjunct of that department; this occurs quite frequently in archeology. The welfare of such a museum will depend almost solely upon the interests of the department head, whose major responsibility is a teaching program. Yet it is probably a reasonable arrangement for specific museums devoted to restricted fields on campuses where there is no over-all museum organization.

It does not seem to be a good administrative practice to have the director of a generalized university museum responsible to, or the same individual as, the head of a teaching department of a more restricted field, as is the case on a few campuses.

The total program of a general natural science museum covering many fields of science is naturally broader than that of any particular department and of many colleges of the university. The museum director on a large university campus has a responsibility similar to that of the director of the university library, and he should report directly to the president's office. It is no more appropriate for the museum director to report to the dean of a college than it is for the director of the university's libraries to do so.

This rather obvious point requires further comment since at one major institution a change recently was made from this recommended pattern to that of having the curators of the several departments of the university museum report to the dean of the college of arts and sciences. This I regard as unwise: the primary responsibility of the dean is related to the effective education of undergraduates in his college, and he is not likely to be charged with, or have a sympathetic inclination toward, giving substantial support and encouragement to specialized research activities by graduate students and faculty members. In all probability, when well-trained faculty members are hard to obtain, the dean feels quite justified in moving curators from research positions to the teaching of heavy enrollment courses. From the viewpoint of a dean of a college of arts and sciences, this may be an appropriate thing to do. However, from the viewpoint of the president's office, in reviewing the total program of the institution in which education, research, and extension have to be intelligently balanced, this may not be the appropriate thing to do.

A museum should not function merely as an audio-visual department. The campus museum has integrity in a program of its own and, when used effectively, can make very solid contributions to education and to scientific knowledge on all levels. It can provide specialized displays pertinent and parallel to specific courses for undergraduate students. It can provide research materials for the training of graduate students. It can provide the raw materials from which the faculty will produce important scholarly contributions. The latter will feed

back into the total educational picture by increasing the availability of our knowledge through displays, lectures, and publications, both scholarly and popular.

A checklist of campus museums

The museums on our campuses fall into three general levels of comprehensiveness—departmental, college, and university—and their salient features may be briefly summarized. Collections of expendable objects that are primarily used in undergraduate instruction should be maintained by the appropriate teaching departments and do not require a museum organization.

A departmental museum can function effectively as part of either a small college or great university. Usually its primary activity will be the production of displays and the assembling of limited teaching collections for the students in the department. In the absence of community, college, or university museums, its exhibit program may be enlarged to serve a wider audience. It should not maintain serious research collections unless there are unusual, compelling reasons and unless adequate provision has been made for the long-range care of such collections. The departmental museum should be administered by a curator who reports to the chairman of the corresponding teaching department.

A college museum should be primarily a general exhibition museum covering wider areas than would be appropriate for a departmental museum. The displays are frequently designed for the general public, and special care should be given to make them a valuable adjunct to undergraduate education. Collections should be restricted but should be sufficient to serve as a reservoir from which the exhibits can be modified frequently. Normally, there should not be extensive research collections. (If a circumscribed collection is needed for a particular faculty member's investigations, it might better be cared for in a separate departmental museum.) The college museum should be administered by a director who reports to the president, or dean, of the college.

A university museum is an exceedingly complex organization that, in many ways, is a microcosm of the university itself. Its full functions include exhibition halls for the general public; special exhibits for the student body; extensive and important research collections for graduate students, faculty members, and visiting investigators; and a publishing program devoted to both scholarly and popular works. Teaching collections may be maintained by the university museum as a service for the teaching departments, or they may be handled directly by the teaching departments themselves. The functions of a university museum will be modified by the goals of the university and the availability of exhibits and collections in the vicinity of the campus. The university museum is staffed by a group of scholars, usually referred to as curators, and administered by a director who reports to the president of the university.

In Arizona, Florida, Nebraska, and Washington, the museum of the state university is also designated as the *state museum*.

Creating Personnel Policies To Attract and Retain Librarians

MORRIS A. GELFAND

ATTRACTING and holding competent librarians in order to provide the highly varied and complex library services that are demanded in higher institutions that value intellectual achievement will be an important aspect of the staffing problem facing college and university administrators during the 1960's.[1] A shortage of librarians has existed since World War II. Library schools have not yet been able to eliminate this shortage, and they are faced with the certain prospect of an increasing demand for librarians. This demand, like that for other academic personnel, is developing at a fast rate, mainly because of the phenomenal increase in college and university enrollments. But in the case of the librarians there are other reasons as well. Among these reasons, one of fundamental importance is: libraries of higher institutions are no longer regarded as mere book repositories exercising a custodial function, but as active instructional agencies.

Modern libraries, therefore, require more well-educated and trained librarians to perform their educational functions than did their older counterparts. Moreover, the whole professional staff of the modern library in a higher institution, and not the chief librarian alone, must be capable of functioning on a high educational level. And this is as it should be, for it is imperative that every educational resource of the institution be utilized to the fullest practicable extent of its capabilities if higher institutions are to cope successfully with the challenges of vastly increased numbers of students and the need to maintain, indeed, often to raise, the quality of instruction. It follows that all who teach, whether in the classroom, the laboratory, or the library, must collaborate in an effort to educate students and advance knowledge. But how are we to attract to librarianship, and to college and university libraries, in particular, men and women who are capable of serving effectively on a high educational level?

It will become increasingly necessary to offer substantial inducements to attract competent persons to librarianship in colleges and universities. Inducements can be offered to some extent by library schools, but fundamentally it will rest with the colleges and universities to create them. And the principal inducement will be explicit recognition, in institutional policies and practices, of the essential educational character of the librarians' contribution to the accomplishment of the purposes of the institution. In practical terms, this will require that academic status be conferred on all professional librarians who constitute the staff of the institutional library, and that the librarians, in effect, become fully privileged members of the academic family.

Academic status and the privileges that should be awarded with it are defined in the concise and well-reasoned statement "Status of College and Uni-

[1] It is estimated that "the universities, colleges, and junior colleges should be supplied with a total of 346,000 qualified new teachers during the next 11 years." National Education Association, Research Division, *Teacher Supply and Demand in Universities, Colleges, and Junior Colleges, 1957–58 and 1958–59* (Washington: The Association, June 1959), p. 54.

versity Librarians," by the Committee on Academic Status, University Libraries Section of the Association of College and Research Libraries.[2] The statement, from which some excerpts are reproduced here, was approved by the American Library Association in the summer of 1959:

> The University Libraries Section of the Association of College and Research Libraries, recognizing the mutual interests of faculty members and librarians in the dissemination of knowledge and the advancement of learning, knowing that the work of the professional librarians is essentially educational in character, and convinced that the institution benefits substantially when library activities are integrated with teaching and research plans, strongly recommends that professional librarians be granted academic status, with corresponding faculty privileges. . . .
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> Over half of the colleges and universities in the country have already recognized the propriety and value of academic status for their professional library staffs by granting academic recognition to professional librarians.[3]

Then, there follow some brief statements of the principal reasons for granting academic status, in one of which this sentence appears:

> It is safe to say that any institution not granting academic status to its professional librarians will find it increasingly difficult to recruit a high type of library personnel.[4]

College and university administrators may perhaps take affront at this statement, but cool consideration of its implications may lead to its acceptance. A first-rate candidate for a career in college and university librarianship will be encouraged to enter this profession if he is assured that he will receive adequate recognition of his education, professional training, and educational function through the award of academic status, together with the financial and other privileges of that status, including the possibility of achieving promotions based on individual excellence and not solely on administrative function.

According to the Committee on Academic Status:

> Academic status for professional librarians may be defined as the formal recognition, in writing, by an institution's authorities, of librarians as members of the instructional and research staff. The recognition may take the form of assigned faculty ranks and titles, or equivalent ranks and titles, according to institutional custom. . . . The privileges of academic status . . . relate to tenure, academic freedom, sabbatical leaves, equitable salaries, holidays, insurance and retirement.[5]

Referring mainly to college libraries, including those of universities that do not offer advanced degrees beyond the M.A., the newly adopted "Standards for College Libraries" include, as set forth by the A.C.R.L. Committee on Standards, the following provision for the library staffs:

> Professional librarians should have faculty status, with the benefits enjoyed by the teaching staff. These should include such items as tenure, sick leave, liberal vacations, an adequate retirement plan, and sabbaticals. The salary schedule for librarians should be the same as for teaching members of the faculty. It follows that librarians —in line with established promotion policies at their institutions—should be expected to do graduate work in such areas as would contribute to their effectiveness in their respective positions. In some instances such a program of study might well lead to a second or third Master's degree rather than to a Ph.D. degree. Opportunity should be granted for engaging in such studies. However, provision should also be made for giving recognition through promotion or salary increase to exceptional ability in the performance of duties.[6]

[2] *College and Research Libraries*, September 1959, pp. 399–400.
[3] *Ibid.*, p. 399.
[4] *Ibid.*, p. 400.
[5] *Loc. cit.*
[6] "Standards for College Libraries," *College and Research Libraries*, July 1959, p. 276.

Both college and university librarians, it can be concluded, are now in essential agreement about their educational role and the need for academic status and its privileges. Consequently, it can be expected that they will, with increasing vigor, continue their efforts to acquire this status.

The present unanimity of outlook among college and university librarians is the culmination of more than two decades of discussion, occasionally controversial, on the subject of academic status. A leading proponent of the position favoring academic status, Robert B. Downs, director of the School of Library Science and the University of Illinois libraries, has performed a highly useful service to those who are interested in this subject by bringing together, as a book, a group of papers on academic status.[7] They reflect not only the growing concern of librarians about their status but also a variety of approaches and practices relating to status. Except for Robert W. McEwen's paper "The Status of College Librarians," which was presented in 1941, before the United States entered the war, all the papers were written after the war. Then a librarian but later to become president of Hamilton College, McEwen concerned himself mainly with discussion of the questions: "What status do college librarians want? What can college librarians do to achieve it?"[8] He indicated some basic sources of concern over status, showed the need for greater understanding of the problems surrounding it, and suggested approaches to solutions of these problems.

In his paper "Academic Status for University Librarians—A New Approach," Downs relates his experience with the reorganization of the professional library staffs of the University of Illinois.[9] He notes that in 1944 the professional librarians at the University of Illinois were transferred from civil service administration to the academic staff of the university. All professional positions were classified in terms of their educational and technical character and placed in the academic categories of assistant, instructor, assistant professor, and associate professor. Librarians who taught were privileged to use their academic titles, but all professional librarians who were placed in an academic rank were entitled to the salary of that rank. In regard to retirement benefits, tenure, leaves for illness, and sabbaticals, librarians received the same privileges as the teaching staff; for some purposes, such as administration of rules for work schedules, librarians were covered by the rules for the working conditions of administrative officers. The Illinois situation has been improved further in recent years, but as a result of his 1944 experience Downs notes some conclusions that are still valid:

> Professional librarians, by the nature of their functions, belong in the instructional and research group;[10] . . . by comparative standards of education and preparation, they qualify for inclusion with the teaching staff; and, . . . there are numerous tangible and intangible advantages for librarians in holding an academic classification. With reference to the last point, the factor of staff morale is of primary significance. . . . The improved status of librarians at Illinois is certain to play a major part, as time goes on, in the development of a library staff with

[7] Robert B. Downs (ed.), *The Status of American College and University Librarians* (Chicago, Ill.: American Library Association, 1958).

[8] *Ibid.*, p. 170.

[9] *Ibid.*, p. 161.

[10] In this connection it should be noted that in 1956 the Council of the American Association of University Professors clarified its position in regard to the eligibility of librarians for membership in the association. The council stated "that librarians of professional status are engaged in teaching or research." "Record of Council Meeting of American Association of University Professors," *AAUP Bulletin*, Spring 1956, p. 180.

a high sense of professional pride and responsibility, conscious of the importance of its work, and receiving proper compensation and recognition for its contribution to the institution.[11]

Harvard's new personnel program for librarians recognizes that:

. . . the Library's professional staff is a group within the University fully as professional as the teaching faculty and entitled to comparable perquisites. This has been based on the ground that librarianship requires exacting preparation and that librarians perform functions vital to the well-being of the University. It reflects the conviction that a staff of outstanding quality is essential to maintain a library with Harvard's outstanding resources for teaching and research, and this calls for a climate favorable to the development of each librarian's capabilities. The adoption of a program built upon these premises may well be regarded as a significant milestone in the life of the Library.[12]

It will be recognized that these premises are not peculiar to Harvard.

Harvard's professional librarians are classified as "officers of administration" in contrast to the teaching faculty, who are "officers of instruction." Except for sabbatical leaves, which are awarded only to officers of instruction, "pensions, insurance, faculty club membership, the health program, and other 'fringe benefits' are identical for officers of both kinds." [13] Many of the senior officers of the library staffs are faculty members.

Between Harvard's program and the one at Illinois lies a wide variety of personnel programs for professional librarians. In a recently published summary of library staff conditions in 115 American universities, Downs concludes:

First, as librarians, I do not believe that we want to cheapen high standards for faculty appointments by according such standing to poorly-qualified staff members. Librarians must offer equivalent qualifications if they are to expect academic recognition. In some instances, if an entire staff cannot come up to the specifications, a gradual approach may be preferable. Furthermore, for academic advancement, criteria similar to those used for the teaching staff should be followed, including, in addition to educational and professional attainments, continued interest and participation in the activities of library associations, research in problems of librarianship, writing for publication, and other evidences of professional maturity. Given these basic conditions, I have not the slightest doubt that librarians should be accepted as an integral part of a university faculty.[14]

Writing in 1940, Branscomb mentions some important aspects of the problem of attracting competent librarians:

This brings me to the third obligation of the college president . . . if he would secure the most effective library service, namely to raise the librarian's status above what it is in most colleges. There are several obvious reasons for this. The first is that unless this is done it will be quite impossible to secure men and women of the caliber desired for this service. Few college professors, for example, who might be attracted to the work of the library would be willing to exchange their professional salary, their secure tenure, their opportunity for sabbatical leave, and their generally superior social status for a position that usually offers less of a return in all these respects. The fact that many librarians have not warranted a position comparable with that of faculty members is beside the point, if one is interested in securing a librarian who will. . . .

There is still more fundamental reason for improving the usual status of the librarian as compared with that of his faculty colleagues. As colleges get larger the tendency of the different elements to lose contact with each other and to function as independent units is constantly to be combatted. . . . This calls for an organiza-

[11] Downs, *op. cit.*, p. 168.
[12] *Ibid.*, p. 5.
[13] *Ibid.*, p. 7.
[14] *Ibid.*, p. 27.

tional set-up which relates the librarians to the faculty as closely as possible.[15]

In these remarks Branscomb was referring to the chief librarian of a college: today, librarians would tend to agree that Branscomb's views in this connection should apply to all professional members of the library staffs of colleges and universities.

The development and maintenance of high standards of teaching and research are increasingly dependent upon the provision of excellent library resources, services, and facilities. Services, resources, and, to a degree, facilities are in turn dependent upon the availability of trained librarians who are primarily teachers in their educational outlook. Such librarians, fully aware and appreciative of the general and specific educational aims of the institution they serve, will realize that teaching occurs in the library as well as in the classroom. They will collaborate with their colleagues in the classroom in building library collections designed as specifically as possible to serve the needs of students, teachers, and researchers. They will organize these collections to make them fully and easily accessible to their academic community. And they will provide a wide range of bibliographical and instructional services to assist and educate the user of library resources.[16]

College and university presidents do not need to be reminded of the importance of the library. Most of them surely would agree with President Emeritus Hughes, who wrote: "The library must at all times be the center of the intellectual life of a college or university. . . ." [17] To achieve this ideal, in a literal sense, the president should encourage the creation of comprehensive institutional library policies by his trustees, and he should be prepared to execute these policies effectively. While he is considering the subject of policy he will probably find it helpful to confer with faculty members and key members of the library staff, and he will seek a policy that reflects faculty sentiment, institutional traditions, and other factors that represent the particular character of his institution. He will be guided by the particular educational objectives of his institution, his personal educational philosophy, and the practical experience of his colleagues. He will know that sound library policy recognizes the essential educational role of libraries and library staffs, and he will provide, through policy and appropriate programs, conditions that will enhance further the role of the library and ensure an adequate supply of competent librarians.

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[15] Harvie Branscomb, *Teaching with Books: A Study of College Libraries* (Chicago, Ill.: Association of American Colleges, American Library Association, 1940), p. 95.

[16] For an excellent brief discussion of the daily teaching activities of college librarians, see Robert A. Colby, "Librarians Are Teachers: A Report of the Staff Association of the City College Libraries" (multilith), 16 pp. (Copies are available from Paul Klapper Library, Queens College, Flushing 67, N.Y.)

[17] Raymond M. Hughes, *A Manual for Trustees of Colleges and Universities* (2d ed.; Ames, Iowa: Collegiate Press, 1945), p. 108; in this connection, see the very effective statement of the educational role of the library in Middle States Association of Colleges and Secondary Schools, *Evaluating the Library*, Document 4.81, October 1957, 2 pp.

Personality Characteristics of Dental Students*

PAUL HEIST

A SCIENTIFIC interest in the nature and educational implications of individual differences had its origin in the first two decades of the present century. Some attempts to identify and measure significant characteristics of college students actually came before the year 1900.[1] However, it was not until the years just preceding World War II, when a number of investigations were for the first time directed to the measurement of attitude change, that much emphasis was given to personality assessment of large groups of students. Two prominent examples of such studies were those conducted by Nelson[2] and Newcomb.[3]

In the course of the present decade, research on large numbers of students in colleges, universities, and professional schools has expanded to unforeseen proportions. As a single example, the majority of the research projects at the Center for the Study of Higher Education at Berkeley are concerned with important personality characteristics and the growth and development of students—students categorized by college class, institution, type of institution, and major academic and professional programs.[4] One of these major projects is a collaborative study with research staff members of the American Dental Association and the Association of American Medical Colleges on the characteristics of students in their member institutions.[5]

This paper is limited to a rather general review of some of the major psychological characteristics of dental students, with some attention given to their significance for professional education and professional careers. Leaders in dentistry have made it known that not only is there a need for many more dentists today and in the immediate as well as the more remote future, but that there is also a growing concern over the recruitment and selection of dental students. A number of dental school deans, speaking informally in a recent national conference, manifested considerable anxiety, both over the motivation and apparent values of many who enter the

* Arrangements for the collection and analysis of these data, for this and subsequent reports, were made by Dr. T. R. McConnell, chairman, Center for the Study of Higher Education. The author also wishes to acknowledge the efforts and assistance of other research personnel at the center.

[1] J. McKeen Cattell and L. Farrand, "Physical and Mental Measurements of the Students of Columbia University," *Psychological Review*, November 1896, pp. 618–48.

[2] Erland N. P. Nelson, "Radicalism-Conservatism in Student Attitudes," *Psychological Monographs*, L(1938), 32 pp.

[3] Theodore M. Newcomb, *Personality and Social Change: Attitude Formation in a Student Community* (New York: Dryden Press, 1943).

[4] See T. R. McConnell, "The Diversification of American Higher Education: A Research Program," *Educational Record*, October 1957, pp. 300–315; Paul Heist, "Diversity in College Student Characteristics," *Journal of Educational Sociology*, February 1960, pp. 279–91; T. R. McConnell and Paul Heist, "Do Students Make the College?" *College and University*, Summer 1959, pp. 442–52; Martin Trow, "Some Implications of the Social Origins of Engineers," *Scientific Manpower*, Papers of the Seventh Conference on Scientific Manpower (Washington: National Science Foundation, 1958), pp. 67–75.

[5] Mrs. Grace Parkin, director, Division of Educational Measurements, Council on Dental Education, and Dr. Helen Gee, director of research, Association of American Medical Colleges, have been responsible for various aspects of these studies.

profession and over the virtual absence of candidates in most institutions for careers in research and teaching. The concern over motivation and values is, in part, the topic of a current investigation being conducted jointly by the University of California School of Dentistry and the staff at the University of California Counseling Center.[6]

The major questions to which this paper is addressed are: What are the personality characteristics, values, attitudes, and interests typical of present-day dental students? What are the inferences one might draw from their measured characteristics regarding the students' motivations and aspirations? And, what are the implications of these data for the quality of scholastic achievement and for the hope of supplying the need for research and teaching personnel from the present student bodies of the dental schools?

As part of the larger study of differential selectivity mentioned above, both of professions and professional schools, and of the education and development of students in the two major health services, several personality inventories were administered to all entering students in nine presumably "representative" American dental colleges in the fall of 1956. These nine dental institutions (hereafter referred to as the NDI sample or study) were selected to provide approximately a 20 percent sample ($N = 613$) of the total entering student population and to be representative of the type and variety of schools in the nation. The selection criteria included type of affiliation or control (public versus private), geographical region, and specific characteristics or emphases of curricular programs. From some limited data available on the dental students in all schools in the country, it would seem that the over-all NDI sample is equivalent in quality and composition to any sample of students or institutions that might have been drawn completely at random.

The staff of the Council on Dental Education of the American Dental Association made data available on the entering freshmen of 1952 in all dental schools; this information furnishes one basis for determining representativeness of the sample of nine institutions. The mean score on the American Council on Education Psychological Examination for the NDI sample is between two and three points higher than the mean score of entering freshmen in all dental schools. The NDI distribution of students' fathers' occupations is very similar to the distribution of all dental students in 1952, with the exception that in the NDI group more students come from the skilled trades and fewer from the nonskilled occupations. Part of this difference may be attributed to variations in classification procedures.

In a survey by the Council on Dental Education,[7] conducted during the year 1953–54, data were collected on students in all classes in 39 schools, 90 percent of the total dental student body. Some of the data permit comparisons with the information obtained from the NDI freshmen under consideration here.

The categories of fathers' occupations outside the professional fields are not the same and cannot be directly compared, but for those students with fathers in the professions, the figures are 25.6 percent in the 39-school sample and 22.3 percent in the NDI sample. The percentages coming from the homes of dentists and physicians in the large 39-school sample are identical with the figures for all entering freshmen of 1952 (see above), 10.7 and 3.1 percent, re-

[6] Dr. Herbert Hackett of the Counseling Center is supervising this project.

[7] Council on Dental Education, "Dental and Dental Hygiene Students: Their Characteristics, Finances and Practice Plans. II: Characteristics of Dental Students," *Journal of the American Dental Association*, January 1956, pp. 72–80.

spectively. These compare with 6.7 and 1.6 percent for students in the nine selected colleges (NDI) in 1956. The percentages of students whose fathers were dentists in the nine schools varied considerably; the small percentages of fathers who are physicians are much more consistent across these schools than are percentages of fathers in dentistry.

Perhaps the most stable category across the nine schools is found in the large percentages (between 60 and 70 percent) in the conglomerate occupational group called "skilled." This is unfortunately a nondescript category that includes a large number of managers and proprietors (30 percent in the Council on Dental Education 39-school study). However, the largest proportion, nearly one-half the students in any of these samples, comes from all other skilled, semiskilled, and unskilled occupations.

In the Council study of the students in all classes in the school year 1953–54, attention was called to the large percentage of married students. Even among the ranks of the freshmen in this group, 31 percent were married: the relatively large number of older veterans was perhaps in considerable part responsible. In the smaller NDI freshman sample of 1956, which included relatively few veterans, 23.6 percent of these male students reported being married. However, very low percentages in two out of the nine schools depressed this total figure. In the remaining seven institutions, the proportion of married freshmen would have been above the 1953–54 figure.

Some discrepancy appears between the NDI and the 39-school samples on the amount of predental education reported. The results of the Council survey show an increasing trend toward more preprofessional education. The authors indicate that 45 percent of the nonveteran entrants had completed at least four years of college, and only 23 percent entered with two years. In the NDI sample, although there is some variation among the nine schools, only 37 percent had four or more years to their credit, and 27.4 percent entered with two years of college. Also, 5 percent fewer in the NDI sample, as compared to the schools in the Council study, had three years of preprofessional education. The NDI schools, as a group, do not seem to be enrolling students with the increasing amount of previous college education typical of the reported trend. To confirm this, of course, one would need to know the percentages for the respective schools in the fall of 1953.

On the whole, the approximately 20 percent NDI sample of the first-year students appears to be quite representative of dental students in general. In measured academic aptitude the mean score for the nine institutions is a little above the national average for entering students. The picture of occupation of father and marital status closely resembles that for the entering students in all dental schools. Only in the amount of predental education is the NDI sample not typical of the over-all picture.

Personality description

The following description of the "personalities" of the students in dental schools in America is strengthened considerably by the use of several different personality inventories in the total NDI sample. The three measuring devices employed were the Edwards Personal Preference Schedule,[8] the Allport-Vernon-Lindzey Study of Values,[9] and the

[8] Allen L. Edwards, *Personal Preference Schedule, Manual* (New York: Psychological Corp., 1954).

[9] Gordon Allport, Philip E. Vernon, and Gardner Lindzey, *Study of Values, Manual of Directions* (Boston, Mass.: Houghton Mifflin Co., 1951).

Strong Vocational Interest Blank.[10]

The reader should keep in mind that the average scores, representing a supposedly typical dental student, refer to a hypothetical person. No single student is quite like the "typical" individual portrayed in the average scores. One is only able to infer about a general pattern of attitudes and motivation that, to varying degrees, would be descriptive of the majority of individuals in this sample. As far as the nine dental schools are concerned, some student bodies are more accurately described by the mean scores of the total group than are other student bodies.

The results on each of the three inventories will be presented briefly without tabular presentation of data.[11] Some implications are suggested where the particular results relate directly to the major questions raised at the beginning of this paper. Rather than giving the results of all the scales (dimensions) included in each of the three inventories, discussion and description will be limited to the scales that differentiate this group from the scores of the normative groups[12] or from a few comparable groups in other professions.

The three personality inventories differ essentially from each other in the specific aspect of personality measured. The scaled variables on the Edwards Personal Preference Schedule represent manifested *needs* of human beings; these needs, 15 in number, may be viewed as largely a product of the past experiences of the individual, compounded with hereditary factors in various degrees.

The Study of Values measures six basic *values* or dominant interests. These are called: Theoretical, Economic, Aesthetic, Social, Political, and Religious. The utility of this six-way classification of a person's thinking is based on an assumption that the personalities of men are most readily understood or explained by their values and evaluative attitudes.

The Strong Vocational Interest Blank provides scores on each of 45 occupational scales and on three more general interest scales (Interest Maturity, Occupational Level, and a Masculinity-Femininity Index). On each of the 45 occupational variables an individual's measured *interests* are compared to the measured interests of large groups of persons who have been successful in the particular occupations. Thus, a high score on Architecture, for example, shows the individual to have interests very similar to those of successful architects and not specifically an interest in architecture per se or in becoming an architect.

The measurements in all three inventories are relative in that the individual who responds to the statements is required to choose one statement over another one or more—a procedure that gives a profile of relative values, needs, or interests. This results in a fairly clear identification of the highest (or higher) and lowest (or lower) values of the six in the Study of Values but in no absolute measurement of any of them. The same form of measurement on the more complex Vocational Interest Blank and the Personal Preference Schedule results in less precise differentiations of highest and lowest characteristics.

The personality needs

The personality of the average dental student appears to be different from that

[10] E. K. Strong, Jr., *Vocational Interests of Men and Women* (Stanford, Calif.: Stanford University Press, 1943).

[11] Future reports, including data from students in both the dental and medical professions, will present all available data.

[12] The normative groups, separately established for each sex, for the Personal Preference Schedule and the Study of Values were college students; in the case of the Vocational Interest Blank, they were men or women successful (by various criteria) in the respective professions.

of the average undergraduate college student in a number of significant aspects, since the scores for dental students on a number of need-assessment scales of the Personal Preference Schedule indicate definitive differences. From the standpoint of these measured needs, the following characteristics are delineated for the dental student:

1. He is somewhat other-directed rather than inner-directed (in Riesman's terms) in being concerned about what others think and in wanting to be seen as proper and "right," in tending to defer to others, and in exhibiting no real need to take independent stands. He is more authoritarian than nonauthoritarian in his need to conform to the conventional and the traditional, in his more frequent identification with conservative rather than with liberal thinking. In the area of human relations and social endeavors, he appears to have little need to assume responsibility or to attempt to guide or direct the efforts of others.[13]

2. He is somewhat inflexible and has no great need to change or to seek out the new and different. He is instead generally ready to accept or to leave things as they are.[14]

3. He has considerable need for living in an organized and self-regimented fashion. Also, he gains satisfaction from neatness and from his awareness of details. For many this would be true to the point of appearing compulsive.[15]

4. He is persistent and not readily distracted either from immediate tasks or more remote goals. In this sense he is an achiever, in spite of the fact that he does not particularly need to acquire recognition or to exceed others. He responds or behaves as if his goals were generally attainable and within his level of aspiration, and it is not as if he were shooting for the stars.[16]

Two of the above characterizations may appear to give an overly negative connotation to the need structure of the dental student. The reader is reminded that the difference in mean scores between the NDI sample and college students in general must be seen as *more* or *less* of a measured trait or characteristic rather than as the presence or absence of it in a person's behavior. Also, the behavior as characterized under points 1 and 2 is not peculiar to dental students but much like that of the majority of people in our society. However, to find such attitudes in a professional group, assuming the attitudes persist to graduation and do not change, is perhaps a bit surprising. What these results might imply for the education of these individuals is more noteworthy and of real significance.

Major values

As with the behavior of all human beings, the values to which dental students subscribe may be considered basic to their roles and to their aspirations for the future. Unfortunately, there is no single, comprehensive inventory or questionnaire that permits objective

[13] These characteristics are indicated, as major and subsidiary factors, by the mean scores, which are significantly different (.01 to .05 level) from the normative scores, for the total NDI sample on three PPS scales: high on Deference and low on Autonomy and Dominance. The great majority of the nine institutional groups are also significantly high or low on the respective scales.

[14] Indicated chiefly by significantly low mean scores on the Change scale for the total NDI sample; the mean scores for all but two institutional groups are also significantly below the normative mean.

[15] Indicated by significantly high scores on the Order scale and indirectly supported by the low scores on Autonomy and Change. The total group and all institutional groups are significantly high on Order.

[16] High scores on the Endurance scale, average scores on Achievement, and low scores on Dominance. All institutional groups but one are significantly high on Endurance, and all but two are significantly low on Dominance.

measurement of all important values for any individual or group. Though the Study of Values is limited to six basic values, one of its advantages, like the other inventories utilized in this project, centers largely on the comparisons that can be made with other persons and groups. Also, as mentioned previously, the particular structure of the inventory results in a *pattern* of scores denoting areas of *greatest* value or personal emphasis and other areas of *least* value. Thus, this relativity of measurement across the six scales lends itself to one form of interpretation, a rank ordering of values, that derives directly from the respondent's perception. Beyond the usual mean score comparisons among groups, the interrelatedness of the scales suggests that it is especially meaningful to determine on what scales the largest numbers of any group score highest and lowest.

On only two of the six scales in the Study of Values did the students in this NDI sample make relatively high scores. The measured values of the average dental student, and the characterizations based on the definitions and validation of the scales, are as follows:

1. The average dental student places relatively high value on a theoretical approach to learning. This is the dominant interest for him when seen in context of the other values being measured —Economic, Aesthetic, Social, Political, and Religious. He may be described as one who takes a cognitive attitude, who attempts to observe, to analyze, and to systematize what he pursues. In this respect he appears to be a knowledge seeker.[17]

2. He definitely values his religious beliefs and practices, and concern with religious matters seems to be one source of meaning and satisfaction.[18]

3. He places some value upon economic matters and interests and, to a lesser degree, he presents a "political" orientation in his thinking and relationships. Thus, his perception and attitudes are influenced by what appears utilitarian and practical, and he is interested in maintaining the *status quo*. In most attitudes he manifests more conservatism than liberalism.[19]

These NDI students score lowest on the Aesthetic and Social values. Less than 10 percent of all students make their highest scores on these two scales, while over two-thirds of the 615 men receive their lowest scores on these

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[17] The highest mean scores on the Study of Values are found on the Theoretical scale; the mean is a significant (.01 level) four points above the national undergraduate mean. Approximately three-fourths of the total sample obtain scores above the national mean; however, only 42 percent score highest on this scale in comparison to their own scores on the six other scales, while another 33 percent are second highest on this.

[18] The mean score for the NDI group is significantly higher (.01 level) than the normative group but is subordinate to the Theoretical score for the majority of individuals. Only 21 percent score highest on the Religious scale. The means for all institutions except one are either at the mean for the total NDI sample or some distance above it.

[19] The mean scores on the Economic and Political scales are approximately equivalent to the mean of the norm group, which certainly indicates no absence of these interests or values; since the raw score means are at the same level as the Religious scores, in an intrascale sense these two may be considered as receiving almost the same emphasis, all three equally second only to the Theoretical value. However, when considering scores on the Economic and Political scales in the light of the amount of dispersion in most groups, all means obtained on the Political scale fall within a rather limited range. Thus, the level of the score for the NDI students on the Economic scale takes on more significance since the "operational" range of variation is much greater. A total of 30 percent obtain their highest scores on these two values. Almost an additional 25 percent score second highest on the Economic scale. Thus, over a third (40 percent) of the group score either highest or second highest on the Economic scale.

scales. All groups in the nine different institutions except one present equally low mean scores on both variables. It is of interest to note that the lowest mean of all is on the Social scale; in contrast, for the normative group (undergraduate college males) the mean scores on the Aesthetic and Religious scales rank at the bottom.

People high on the Aesthetic scale are aware of form and harmony and generally seek and gain satisfaction out of the artistic aspects of life.[20] The significantly low scores for future dentists on the Aesthetic factor lead to only one conclusion: these candidates, at least the great majority of them, have not learned to take or to place a major value upon an aesthetic outlook.

On the Social scale, which reportedly measures a concern for and interest in one's fellow man, men in general rarely make high scores. Moreover, it is undoubtedly a score that is "forced" down because of the peculiar structure of the inventory. Notwithstanding any fallacies in measurement involved here, the students in dentistry seem to have relegated any such value, as compared to the others, to a netherly position.

A few comments in summary on the Study of Values findings may serve to integrate them with some results on the Personal Preference Schedule. As far as scholarship in dental school and the general practice of dentistry are concerned, the positive aspects of the above *pattern* of measured values for the NDI students are limited to the Theoretical scale. The "average student" under consideration is to be credited with a cognitive, empirical, and possibly somewhat critical approach in his pursuit of knowledge and the skills of his future profession. However, the low Aesthetic scale scores argue against a genuine interest in scholarship and against much ingenuity or creativity in intellectual behavior. An inference in support of this contention can be drawn from the relatively high scores on the Religious scale and the average scores on the Economic and Political scales. The whole profile may be summed up as one that correlates positively with authoritarianism, with behavioral rigidity, and with an "applied" and noncomplex orientation toward learning. Any interpretation of the relatively high Theoretical score and its implication for the behavior of dental students must be conditioned by the rest of the scores. It may be a genuine value on the part of these students, but the "search for knowledge" is seemingly circumscribed by pragmatic vocationalism.

Measured interests

The data available from the Strong Vocational Interest Blank (SVIB) on this large group of dental students can "tell a story" of and by themselves. However, interests and patterns of interests will not be examined in great detail. The occupational scores from the SVIB will be reviewed briefly to determine whether they confirm or contradict the general personality description of dental students derived from the other two inventories. The reader is reminded that the chief virtue of this Interest Blank is that it measures the degree to which an individual's interests are similar to the *measured interests* of successful people in some of the major vocations and professions.

The over-all profile on the SVIB, based again on the mean scores of the total sample of students in all schools,

[20] Research in recent years at both the Center for the Study of Higher Education and the Institute of Personality Assessment and Research has demonstrated high scores on the Aesthetic scale to be a major component of genuine intellectual interests. Also, persons judged or known to be creative in several areas and those with definite research inclinations, both in science and in the arts, score high on both the Aesthetic *and* the Theoretical scales.

is rather striking in the complete absence of any pronounced "sets" of interests similar to successful people in any of the occupational groups (scales). In fact, for the great majority of the occupations, the interests of the largest proportions of dental students are unlike the criterion groups—people successful in the respective occupations.[21] When one considers the major *groups* [22] into which the specific occupational scales are categorized, one finds these students exhibiting the largest number of similar interests in the professional group and in the technical or skilled-trades group; and they show a varied high and low pattern in the business interest groups. On the single scale assessing the interests of dentists, the mean of these students falls approximately at the mean of the criterion group. Interestingly enough, their scores on the Physician and Osteopath scales are significantly higher, apparently indicating greater similarity of interests to the people in these professions. Some general comparisons with students in medicine will appear in the following section.

A recently developed method of analyzing the SVIB profiles, permitting classification of all subjects into three major groups and a number of subgroups, facilitates a more meaningful description of the students in a large sample such as this.[23] The underlying idea of this comprehensive analysis of SVIB scores centers on the assessment of an *intellectual disposition*. This disposition may vary *from* a broad and intrinsic interest in intellectual activity and a theoretical orientation to knowledge *to* an applied orientation, where skill or knowledge is chiefly viewed as a means to an end. These two extremes are represented by Categories A and C; a middle category, B, with five subcategories, includes persons whose major orientation is in the application of principles and who give only limited value to the theoretical approach and derive much less satisfaction therefrom. This B category is briefly titled the "applied-professional" pattern.

The measured interests of the NDI dental students, when classified by the above profile analysis, result in a distribution across all three major categories, as demonstrated in these figures: [24]

Categories	*Percentage Distribution*
A: Intellectual, abstract, theoretical orientation	*11*
B: Applied-professional orientation and interests	72
B1: Biological and life sciences	25
B1+C: B1 with emphasis on technical application	21
B2: Technical-physical science	3
B3: Welfare	8
B4: Business	15
C: Applied-technical interests	*17*

This is probably very much in line with expectations, especially the large concentration in Category B, where the health professions are usually found.

The distribution across the subcate-

[21] There are no mean scores in the A area (area indicating strongest interests) and only two or three in the B+ area, while 32 out of 45 occupational scale scores fall in the B— or C+ section, indicating lower-than-average or low scores.

[22] For the readers generally unacquainted with the field of psychological testing, it perhaps should be said that the results on the SVIB are most efficiently used by considering the measurements simultaneously on a variety of scales and on the *pattern* of scores over many scales. Students genuinely interested in one profession will often score higher on other scales, for one thing, because the complexity of interests goes beyond that of successful people in a single profession.

[23] Martin P. Weissman, "An Approach to the Assessment of Intellectual Disposition among Selected High Ability Students" (Ph.D. dissertation, University of California at Berkeley, 1958).

[24] This profile approach was applied to 100 students drawn at random from the total dental student sample.

gories under B is of interest. The most natural category for those entering dentistry would appear to be B1, where the greatest number do fall. But the other large groups, B1+C, B4, and C, accounting for over half of the total sample, present a picture of interests and inferred motivation that may not always be most conducive to the level or type of professionalism desired by dental school teachers and administrators. If the practice of dentistry demands no more than the qualities and interests chiefly typical of skilled technicians, then over a third in this sample (B1+C and C) seem to present an appropriate, somewhat nonscholarly disposition, assuming their measured interests to be a pertinent indicator.

The percentage of students whose profiles place them in Category A is not equally distributed across the nine dental schools in the sample. The relatively few who possess this disposition seem to be attending certain institutions in much larger numbers than they are others; in some of the latter institutions, there are almost no Category A students. From the standpoint of furthering teaching and research in dentistry, leaders in the profession might prefer to find a considerably larger percentage in Category A and a very minimal group in Category C.

These results on measured interests, which show *no* areas of great strength for these students as a group, support the earlier conjecture regarding a general lack of scholarly motivation. In fact, it would be fair to describe the profile of the dental student group as definitely impoverished. Breadth and diversity of interests, though no doubt typical of numerous individuals, are in no sense attributes of the majority of the group. Minimal motivation toward scholastic achievement is also confirmed by an absence of any high scores that would indicate an aesthetic perspective. It was pointed out above that this latter value, interest, or orientation is closely related to intellectualism and research inclinations.

One other conclusion to be drawn from the SVIB scores relates to the very low pattern of scores in the physical science area (four separate disciplines). In this realm, where the chief means of communication is numerical symbolism, the dental students present the lowest group of SVIB scores. To a somewhat lesser degree the same comments are pertinent to the group of social service scales. These also are definitely subsidiary to the somewhat higher patterns found on the professional (especially health), the technical, and the business occupations. The interests of the scientist and the welfare service worker are conspicuous by their absence.

Comparisons among professional groups

An additional frame of reference for considering and understanding students in dentistry is provided by comparisons with groups in other professions. Scores on one or more of the personality inventories employed with the dental students were available for medical and engineering students and for several groups studying for, or presently in, the ministry. These interprofessional comparisons will be restricted to characteristics (scales) on which major differences among the groups were found.

Physicians, a high-status profession in the public's eye, provide a rather natural comparative group for dentistry. The scores for a large sample of medical students of the same year are available on all three measuring instruments.[25]

A number of interesting, distinguishing differences between the two professions are found on all inventories, although scale-by-scale comparisons across all the

[25] The data on medical students have been collected through the collaborative study with Dr. Helen Gee, director of research, Association of American Medical Colleges.

data make a basic similarity between the groups readily apparent. Beyond that the profile *pattern* across all scale measurements on each inventory is essentially the same. The few exceptions make for noteworthy differences. No consideration will be given here to the similarities or dissimilarities of background factors and the amount and type of previous education.

The value orientations of dental and medical student groups are unlike in that the entering medical students are considerably more theoretical and place much less emphasis upon economic matters and somewhat less upon religious beliefs and practices. The over-all profiles (6 Allport-Vernon-Lindzey value scales) make the first-year dental student appear to be definitely more pragmatic and utilitarian than the students in medical schools. The mean score on the Economic scale for dental students ranks second only to the Theoretical scale score. Though the latter is also highest for medical students, their Economic score ranks as one of the lowest. For about half of the dental schools in this study, scores are available for the entering medical school students in the *same* institution (for example, the students in both the dental and medical schools at New York University). In these particular institutions another significant difference appears on the Aesthetic scale, with the medical groups scoring considerably higher. The difference on the Religious scale is also larger than the difference obtained between the total dental and medical groups across all schools.

From the standpoint of manifest needs (Personal Preference Schedule) the dental students are most different from those in medicine in their concern for order and organization and in their general persistence and endurance. Though seemingly somewhat contradictory they are lower than the medical students on the measured need to achieve; however, the Achievement scale measures this need or motivation in an intellectual and in a competitive sense. This is quite different from the implications derived from the high Endurance score for the dentists. Another major difference between the groups centers in a general social submissiveness and deference to others that characterizes a great many of the dental group. They would be more likely to place blame upon themselves, to feel inferior, to seek encouragement from others and leadership in others.

As far as measured interests are indicative, the most striking pattern of differences appears in the scores of the applied-technical vocations. A second difference is found in a group of business vocations. In both cases the dental group demonstrates more of the interests that typify persons successful in these areas. In contrast, the medical students score considerably higher in the professions having a verbal-linguistic emphasis and also in two scales measuring maturity of interest and the general level of their occupational interests. A point made earlier bears iteration in that the general similarity in the shape or pattern of the total profiles (45 occupational scales) is more prominent than the contrasts observed in the several major groups mentioned.

Generalizations drawn from the measured differences between the students in the health professions include the following: the dental students appear to be somewhat more conservative than those in medicine; they are generally more persistent and certainly as willing, if not more so, to strive for what they want, in part perhaps because of greater feelings of inferiority; and the pattern of values, attitudes, and interests presents them as less inclined toward scholarly activity.

When the dental students are compared to engineering majors, a group which comes from rather similar socio-

economic backgrounds, the measured values fall in about the same rank order, with greatest emphasis given to the theoretical, economic, and political orientations. Except for the Religious scale, the over-all profile patterns for these two professional groups are very much alike. However, engineers, when compared to dentists, place somewhat more value upon economic matters while their scores on the Religious scale are significantly lower. The measured interests of engineers differ chiefly from those of the future dentists in the scores obtained for a group of physical science occupations and for the health professions, with the dentists lower on the first group and higher on the second. The engineers also exhibit even higher interest scores in the technical-vocation group, which would appear to be a correlate of their applied physical science interest.

The third professional group, namely the clergy, presents the most distinct basis of comparison. Members of the clergy were included as a referent group to obtain some comparisons with individuals who have a social welfare orientation and the concern for their fellow men generally attributed to them. Scores on the Study of Values were available for three different groups, one group already established in the clergy and two groups of Protestant seminary students. The mean scores for the three clerical groups on all six scales were not significantly different; thus, the scores were combined to provide a single referent.

The profiles on measured values for people in the clergy and dental students were very dissimilar. Mean scores for the two groups were alike only on the Aesthetic scale, both groups being equally low. The dental group was considerably higher on the Theoretical and Economic scales and somewhat higher on the Political scale. The clerical group was very much higher on the Religious scale and a good deal higher on the Social. (On four of the six scales the difference between the groups is greater than one standard deviation.)

A lesser social concern on the part of these dental students, illustrated by the above differences in measured values, is supported by scores on a second inventory, the Personal Preference Schedule. Mean scores on the latter were obtained for a large group of Protestant ministers representing a number of denominations.[26] The need structure of these two groups appears to be most different in the way others are perceived and dealt with, with the clergy exhibiting more constructive social attitudes and a greater willingness to be helpful and to become personally involved with others. Viewed from this standpoint of human relations the dental students appear to be less socially mature and somewhat less aware of others. This difference, however, may in part be due to the different age levels of the two groups.

In brief, the dental students have a value orientation most similar to the students in engineering, both presenting patterns of scores that describe them as giving value to knowledge more for practical than for intellectual reasons. Of the three professional groups included here they are most unlike the Protestant clergy. Judging by mean score differences on two personality inventories, the quest for knowledge, at least in a non-religious sense, seems to receive more value from the future dentists. However, the great emphasis given by the clergy to the social and religious spheres, as contrasted to their apparent de-emphasis of economic matters, may "force" down the actual assessment of their theoretical interests. At least, along with the difference in their theoretical perspectives, these two groups differ most in the pres-

[26] The Personal Preference Schedule scores for a group of Protestant clergy were furnished by Dr. Clarence Mahler, Chico State College, Chico, Calif.

ence or lack of a social orientation and in the place given to utilitarian, economic interests.

Without presenting or discussing the specific scale comparisons, it will help to complete the picture on type and degree of motivation to state that the measured characteristics of dental students are very different from those of the average undergraduate students attending some of the selective liberal arts colleges in America and from many students of approximately the same level of ability (as the average dental student) majoring in physics, mathematics, and the humanities. The identifying criteria of general intellectual activity, creative behavior, and genuine research interests, as observed in capable students in numerous subject areas, are not present in the "typical" first-year dental student.

Implications and conclusions

One of the three questions guiding the analyses and interpretation of the data presented on dental students was a query about the implications for scholastic achievement and for meeting a need for research scientists—presumably as much in demand in dentistry as in most other areas in the present age. In a sense, this question has perhaps unduly biased the presentation throughout the paper. Certainly a partial answer, based on inferences from the available data, has been written in at several points in the paper.

The author is embarrassingly unacquainted with the status of, and modern developments in, dental research. However, if the graduates from dentistry over the years are at all typified by the measured characteristics of the NDI sample presented here, then it seems fair to conjecture that research in this one health profession probably leaves much to be desired. Even on the basis of the limited knowledge the social scientist and educator have about motivation, learning, and change in behavior, it would be fairly conservative to state that the very best predental and dental education could not make provocative teachers and contributive researchers out of the vast majority of these entrants in dental schools across the nation. The ulterior motivation of upward mobility and the anticipated material advantages at a higher economic level (motivation evidenced by a number of the measured psychological characteristics) are not likely to lead to experimentation and risk-taking in the realm of the unknown. The achievement motivation, certainly present in these men, together with a need to persist and endure the transition from lower economic strata to professional status, is utilitarian and practical. The basic motivation for the majority is not centered in a need for independence, in social service, nor in the attainment of knowledge—certainly not in a quest for new knowledge—and not in mere financial remuneration. A most general conclusion, to be read from the data obtained from all three inventories, is that the motivation is one of *advancement*, advancement in a socially upward direction to a perceived better way of life.

Good practitioners and technical specialists can readily be educated and trained, as is undoubtedly the case, from the student clientele as pictured here. But from the standpoint of the potentialities for research, some dental schools, if not all, will need to change their recruitment and selection procedures in order to enroll a more scholarly student body. (There was some evidence in these data to indicate that a few schools presently select a somewhat different group of students from the standpoint of motivation and attitudes.) However, changing the student body composition is much more easily suggested than accomplished. The majority of frontier-research personnel perhaps must be sought from other scientific disciplines, and it might well be that teachers in essential

areas are, and must continue to be drawn from outside the ranks of dental education.

Assessment of personality characteristics is most likely superfluous in making many dental school faculty aware of the rather restricted motivation of their students, especially regarding the absence of sincere intellectual interests and research inclinations for all but a minority. Undoubtedly, some dental institutions are presently educating students specifically for research and teaching, individuals who have no intentions of becoming practicing dentists, even temporarily. It is conceivable that more institutions could open their doors or recruit students with an orientation and motivation quite different from the typical dental students described above. The theoretical-aesthetic personality (the Category A type, as determined by the SVIB profiling method) with a specific interest in the biological sciences will seldom be found in present-day dental education, but such individuals may possibly be attracted to a challenging future in research on countless problems pertinent to improved dental care and preventive dentistry.

THE STUDENT IS of primary concern to every college and university, not only because he is the focus of the educational program, but also because the role he plays in society after he leaves college helps to create the image that the public has of the institution. The more that is known about students—their characteristics, their experiences, their successes and failures, both in and after college—the better can an institution formulate and evaluate its policies, programs, and procedures.

The nature of a student body is determined by a combination of many characteristics—age, sex, geographical origin, family background, rank in class, performance on standardized achievement or aptitude tests, and also other data (less frequently available) derived from personality inventories and from intensive studies of individual students. These data provide a basis for understanding the intellectual and personal characteristics of the students. Is the intellectual ability of the student body narrow in range, or is its intellectual competence widely spread? Is the group culturally homogeneous, or are there in it various ethnic and cultural subgroups? What personality traits revealed through inventories and interviews are positively or negatively related to success in college? What types of educational experience are most valuable for particular groups of students?

Studies of student characteristics that are conducted over a period of years will also help to identify changes that occur within the student body—changes that may have important implications for the organization of the educational program and for the methods of teaching.—"Areas of Insitutional Research," in *Research Designed To Improve Institutions of Higher Learning*, by A. J. Brumbaugh, published by the American Council on Education, May 1960.

Problems of Education in Pakistan

JOHN E. OWEN

AFTER THIRTEEN years of independence, Pakistan today is confronted with national problems that are as extensive as those of any unit of the British Commonwealth. The illiteracy rate of her 80 million people is approximately 85 percent; several hundred thousand refugees from India have still to be resettled; overcrowding in her growing cities shows no sign of cessation; and the national poverty is such that half the population is subsisting on a rupee (less than twenty cents) a day. Health and welfare conditions are extremely critical, and the infant mortality rate is so high that large families are almost necessary to ensure that some of their members will live to maturity.

A decade of internal political instability, prior to the declaration of martial law in October 1958, resulted in a lack of long-term plans for national reconstruction. Educational reforms, while admitted to be essential, suffered from greater priority necessarily given to industry and agriculture in a fight for economic survival. The result is that in 1960 Pakistan's educational system is still beset by obstacles of national finance, illiteracy, human wastage, and overcrowding to an extent that must be seen to be believed.

Historically, the educational system of the Indian subcontinent can be traced to the early decades of the nineteenth century, when various British administrators laid the foundations for a new Western system of pedagogy. The British program was literary and rhetorical in character, and designed mainly for the purpose of training the minority of Indians who could be useful to the British raj as government clerks and civil servants. It was alien to India in content and character, and unrelated to the needs of the people. Since 1947 and independence, the disparity between educational curricula and national needs has become increasingly apparent: Pakistan, even more than India, is desperately short of technicians, engineers, and trained agriculturalists, but she lacks the facilities and the funds to educate them. The educational system superimposed on her over a century ago is not one, as currently organized, that can be instrumental in alleviating the pressing problems of economic and social welfare that threaten her continued existence as a free nation.

In 1947 the new government established various boards and commissions to make educational plans on a nationwide scale. Education became a responsibility of the different provinces, with local administration in the hands of village and town boards. Mr. Jinnah, "father of the nation," urged that its educational program be suited to the genius of its people, consonant with its history and culture, and take into consideration the changes that have recently occurred in the world. His plea was unheeded, and after his death in 1948 no leader of comparable stature arose to take his place. In consequence, there followed a decade of national drifting under a succession of unstable governments that were widely known to be corrupt and indifferent to the nation's problems.

There was also a widespread lack of consensus in Pakistan on what the aims of education should be, this being part of a more deep-rooted controversy over the social function of Islam in Pakistani culture. Several Pakistani intellectuals

have told the writer that the basic issue confronting their country today concerns the future role of Islam. Should there be a return to the Koran and the Islamic glories of the fourteenth century? Can Pakistan remain true to Koranic precepts and still enjoy the advantages of a modern secular state? If so, should her academic system be primarily religious or secular?

There is still no agreement on these issues, and, in consequence, two types of school exist. There is the secular-oriented English school with a purely academic curriculum, and there is the *madrassah*, an institution found mainly in the villages (85 percent of Pakistan's population is rural) where mosque officials instruct children in Koranic teachings and the precepts of Islamic prophets, sometimes combined with secular subjects.

Elementary education is begun by the child of age four or five, and lasts for five years, followed by a "Middle English" school in which English is taught. Secondary schooling, for those who reach this stage, ends at the age of fifteen or sixteen, and is followed by two years in an "intermediate college." The student may then be admitted to a university for a three-year honors course, or may spend two more years in the college to receive a B.A. "pass" degree.

Most recent committees on education have recommended a five-year elementary course, followed by six years of secondary education; there is also a desire to extend the primary course, when finances permit, to seven or eight years, to meet the needs of the vast majority of young people who will not go on to higher learning. But Pakistani educators admit that such reforms cannot be put into effect for several years.

The majority of elementary schools are five-year schools in name only, for one of Pakistan's biggest educational problems concerns the thousands of children who drop out of school every year. It has been officially estimated that two-thirds of the children of elementary school age are not in school, which accounts to a high degree for the extensive illiteracy in the country. Of the children who do attend school, a sizable proportion leave after one or two years of instruction. There is no compulsion to continue attendance, and the result is wastage occurring at every stage of the educational process. Out of one thousand children entering elementary schools, only eighty to one hundred remain to pass their secondary school matriculation test. The remaining 90 percent have dropped out of school. Only 1 percent of students enter a college, and less than half of those receive a degree. Characteristically for a Muslim country, the proportion of girls in school is less than 10 percent. Examination failures are, by American or European criteria, abnormally high in both Pakistan and India, despite the fact that academic standards are quite low. In East Pakistan, less than half the secondary school candidates in recent years have passed their matriculation examinations. In some districts, the proportion is as low as 5 percent. The same situation obtains in university examinations, where wide variations are related in part to the differences among the colleges that the students have previously attended.

There are several reasons for this high percentage of examination failures. There is great competition to enter the schools, and at an early age children are made aware of the highly competitive character of Pakistani education. The schools are excessively overcrowded, and only a small minority of students have the opportunity of admission. Once in school, they have to contend with language problems. English is compulsory from the Middle School to degree level, and over 75 percent of the books in Pakistani libraries are in English. But text-

books are in desperately short supply, and in the meantime the child has to learn his native Urdu (in West Pakistan) or Bengali (in East Pakistan), in addition to Arabic (to study the Koran) and English. In consequence, he may grow up not being able to speak or write any one medium with competent acquaintance.

His teachers have also been the victims of mediocre school preparation, and their deficiencies of training are reflected in the instruction imparted, though many of them make valiant efforts at self-improvement by home study. Thousands of Pakistani schoolteachers may have high school diplomas but no further formal training.

School equipment for children may comprise little slates on which they learn to write and one or two primers for reading. The "school" in a city (Karachi, Dacca, or Lahore) is probably a dilapidated and poorly ventilated building. The village school may consist of a hut or shed with a dirt floor and tin roof. The teacher's economic status is extremely low. Many teachers are drawn from the ranks of those who have failed in or could not gain entrance to other occupations. In colleges and universities, many younger lecturers (particularly in nongovernment colleges, where salaries are lowest) regard teaching merely as a steppingstone to a more lucrative type of work.

In the North-West Frontier Province, for example, an elementary schoolteacher receives a monthly salary of 50 to 100 rupees ($10 to $20). A secondary schoolteacher may receive the equivalent of $15 to $70 per month, depending on his training and length of service. Conditions vary among provinces: East Pakistan has the highest percentage of untrained teachers and the lowest salaries, but in the entire country academic salaries are pitiably low. It should be noted that the bizarre geographic separation of the nation into two wings, divided by over a thousand miles of Indian territory, has complicated all of Pakistan's problems, including those of education.

Recent committees have recommended that each secondary schoolteacher should have a degree and a teaching diploma, but this ideal condition is far from being realized.

The significance attached to examinations is such that the secondary school pupil is placed under great pressure to excel and to pass all his tests. Even in universities, the practical goal of learning degenerates into that of merely passing examinations, and the emphasis is laid on memorization, rote learning, and "cramming," to the detriment of critical reflection or interest in the content of learning for its own sake. The secondary school curriculum is governed mainly by the provincially organized tests that serve as the bases for college and university entrance. In actuality, Pakistani secondary schooling is not a "preparatory" stage, since very few matriculants (only about 8 percent) enter college, and the remaining 92 percent have to conform to the demands of a system designed for a minority. The curriculum thus tends, as Pakistani educators are quick to admit, to be too textbook-centered, stereotyped, and rigidly uniform, with little regard for the individual aptitude of the pupil.

A unilateral course of study determined for the most part by the requirements of university entrance combines with a rigid timetable and detailed syllabus to make it impossible for the enterprising teacher to adopt new and imaginative methods of instruction. Officials admit that there has been a deterioration in the quality of teaching since partition in 1947, for which both low salaries and poor conditions of service can be mainly blamed. Another factor has been the exodus of Hindu teachers

to India since independence. This group comprised some of the most cultured and highly trained teachers in the country, and their departure entailed a loss from which Pakistan has not yet recovered.

The education the Pakistani child receives, particularly in the villages, is not supplemented or supported by his home experience. Most Muslim parents are too poor to buy books for their children in a land where for the majority of persons life is a constant struggle for mere subsistence. Nor is the educational system adapted to the peculiar needs of rural Pakistan: there is no planned scheme for providing a training suited to the real needs of the agricultural population of the villages. Government commissions have drawn up idealistic programs for relating instruction more closely to agriculture and rural life, but they have as yet not been implemented, owing to lack of facilities, funds, and trained personnel.

When the Pakistani child leaves school as a matriculant of fifteen or sixteen, his education has not prepared him for any specific type of work except clerical office duties. There is keen competition for the few white-collar posts available, for which university graduates also are contending in spite of the low beginning wage of perhaps $30 or $40 a month. But job status exists only in such genteel "mental" tasks. Western educators visiting Pakistan have urged students to take up some form of manual labor, and there have been indigenous demands for vocational education, but the long-standing prejudice in the subcontinent against "menial" work dies hard, with the result that there may be twenty or more applicants for any office vacancy, and even sharper competition for the occupational mecca of the civil service.

Although Pakistan is a highly status-conscious society, some parents, paradoxically, do not recognize the value of education for their offspring and take them out of school, if they have attended at all, at an early age. Unesco commissions have reported that the rate of illiteracy in the country can be reduced only through long-term measures to increase the number of elementary schools, to provide better teacher-training schemes, and to convince parents of the practical gains that may accrue to their children from school attendance.

Numerous private primary and secondary schools have been established, but in many cases their scholastic standards are of dubious quality. These schools are not regarded as the answer to Pakistan's educational problems, and although the tuition fees are very low (often less than a dollar per month), they are prohibitive to many parents. Some of these private academies are commercial, profit-making ventures operated by headmasters, who may or may not be academically qualified. Such academies tend to degenerate into "cramming institutions" for matriculation examinations, and emphasize a large number of exam successes, which serve to enhance the reputation of the school and hence to increase its income from fees. At the end of 1958, an extensive case of fraud unearthed by police in East Pakistan led to the arrest of several persons on the alleged charge of having possessed and issued for sale forged high school graduation certificates and intermediate college degree certificates to many unsuccessful candidates, on the strength of which some of them were admitted to various colleges.

It is easy for Westerners to judge too harshly a fraudulent situation in Oriental education, but this condition has to be viewed in light of the extreme poverty of the country and the competition that places a premium on formal schooling as a means to personal economic survival. It also reveals the basic weakness of an educational system that lays undue emphasis upon the gaining of diplomas and certificates. It might be validly claimed that Westerners are not justified in any

condemnation of such a system, in view of the recently publicized "degree factories" and "diploma mills" in America, the American student's emphasis on high grades, and the cheating that sometimes occurs in college tests.

Despite the bleak picture that can be painted of Pakistan's educational handicaps, there are several grounds for hope. In the first place, her problems of education are simply a reflection of larger national problems of finance, low family income, welfare distress, and the lack of competent leadership and trained technical personnel, which is found in most undeveloped countries. Pakistan since 1947 has had to live her independent life with literally nothing but the will of her Muslim population to survive. That she has been able to do so in the face of immense burdens of economic poverty and political instability speaks well for her powers of endurance. A less hardy people would never have survived.

In the meantime, the new martial law administration of Field Marshal Ayub Khan has made a positive attempt to tackle the intertwined problems of agricultural reconstruction, industrial development, foreign exchange, health and welfare, and tension with India that have plagued the country for more than a dozen years. As long as these larger problems existed, it would have been unrealistic to look for any radically promising developments in education. But as Pakistan's economic condition improves, more funds will be made available for academic purposes. The new regime has shown a greater interest than any of its predecessors in national educational needs, and several reform bodies have been set up to inquire into the total problem. One of the targets of Pakistan's new Five-Year Plan, which goes into effect July 1, 1960, is the provision of elementary school education for all children of school age, and the establishment of six universities, in addition to the six that already exist. The government has also established an Islamic Research Institute, with the purpose of enhancing traditional Muslim values and of bringing Islamic concepts into harmony with the changed conditions of the midcentury.

The nation has benefited from postwar academic exchanges under Fulbright and U.N. auspices, and young Pakistanis are currently studying in several United Kingdom and Commonwealth universities and in America. Serious attempts are being made by dedicated officials, teachers, and social workers to cope with the all-pervading illiteracy and to enhance the best interests of children and youth. New schools have been built since 1947, and various international organizations have made impressive gifts of textbooks. Despite the national poverty, Communist influence on school committees and boards has been negligible. Before martial law, a small number of Communists among university students exerted an influence out of proportion to their size, but their activities have now been outlawed.

It is unfair to compare Pakistan's educational achievements with those of America or of the more prosperous European countries. A comparison with United States education thirteen years after the Declaration of Independence might be more logical. In the light of the vast problems inherited at partition in 1947, there has been real and appreciable progress in attempts to improve the school facilities available and to extend their benefits to more and more children. The nation patently is confronted by a huge task in eliminating its illiteracy, in furnishing substantial secondary school preparation, and in building up technical training facilities for the demands of industry and scientific agriculture. But its new leaders are aware of these needs, and in the next decade even greater progress in Pakistan can be expected.

College Attendance of High-Ability High School Seniors

D. C. ANDREW AND FRANCIS STROUP

THERE HAS been considerable concern expressed regarding the waste of human talent. Educational programs for superior students have received considerable emphasis during the past months, and almost every journal and newspaper we read points out the need for proper utilization of this potential manpower. Numerous studies have revealed that many of our potentially superior students fail to develop their capabilities and do not avail themselves of the opportunities that a college education affords. Thus, it becomes important to attempt to identify those factors that seem to be related to whether a high-ability high school senior does or does not go to college. If such factors can be identified, they will provide a basis for determining appropriate action.

The writers have reviewed the plans of high school seniors and the extent to which they follow their plans.[1] It is the purpose of this study to analyze the extent to which high-ability high school seniors in Arkansas go to college and to identify factors that are associated with the college attendance of this group.[2]

[1] Andrew and Stroup, "Plans of Arkansas High School Seniors," to be published in *Personnel and Guidance Journal;* "Extent High School Seniors Follow Plans To Attend College" (MS in preparation).

[2] This is part of a larger study of factors related to educational discontinuance of high school graduates. The complete report was performed pursuant to a contract with the United States Office of Education, Department of Health, Education, and Welfare. The complete report is entitled *Barriers to College Attendance* (Texarkana, Ark.: Southwest Printers & Publishers, 1959).

Source of data

In the spring of 1957 a ten-page questionnaire was sent to 15,248 Arkansas high school seniors. Over 12,000 questionnaires were returned, and these provided data for the study. To determine the group of high-ability seniors, the results of the state-wide testing program were used. One of the standardized tests administered in this program was the American Council on Education Psychological Examination. Students scoring at or above the 67th percentile, national norm, were selected for this study. The number of students in this group was 1,422.

The data gathered for this group of higher-ability seniors by means of the questionnaire were then analyzed in an attempt to determine what factors were related to college attendance. Because of the multitudinous number of variables involved in the ten-page questionnaire, only those factors that appear to be related to college attendance of high-ability students will be reviewed in this report. The reader should remember that not every factor studied by the writers was related to college attendance.

Findings

Of the 1,422 students classified as high-ability seniors, 795 (55.91 percent) went to college. This means that only a little over one-half of the top talent that graduated from Arkansas high schools in 1957 went to college the following year. This represents a tremendous loss to the state and to the industries of the state in particular.

For purpose of analysis, the factors related to college attendance will be presented in three categories: namely, home, economic condition, and school. Once again, the reader is reminded that the writers are presenting only those factors that seem to be related to college attendance of students with comparable abilities.

Home and family factors

Respondents who had both parents living were asked to indicate whether their parents were living together or apart. Their replies are tabulated as follows:

Parents Live	Did Not Go to College		Went to College	
	No.	%	No.	%
Together	513	90.80	692	92.89
Apart	52	9.20	53	7.11

When the seniors were asked to indicate with whom they lived, association with two parents again showed itself as an identifiable factor related to college attendance.

Live With	Did Not Go to College		Went to College	
	No.	%	No.	%
Father only	17	2.76	6	.76
Mother only	70	11.36	75	9.52
Both parents	494	80.19	688	87.31
Husband or wife	16	2.60	1	.13
Other relatives	17	2.76	18	2.28
In an institution	2	.33	0	.00

The relationship between marital status and going to college is unmistakable. This can be noted in the following data:

Marital Status	Did Not Go to College		Went to College	
	No.	%	No.	%
Single	553	88.34	784	99.37
Engaged	50	7.99	4	.51
Married	23	3.67	1	.12

An investigation to learn how many people lived in the home of each respondent revealed that seniors who did not go to college tended to come from larger families.

Number Living in Home	Did Not Go to College		Went to College	
	No.	%	No.	%
Less than 4	167	27.02	251	32.14
Exactly 4	179	28.96	268	34.31
More than 4	272	44.02	262	33.55

The number of books in the home is related to college attendance. This is revealed in the following information:

Number of Books in Home	Did Not Go to College		Went to College	
	No.	%	No.	%
0–9	44	7.21	12	1.54
10–24	119	19.51	70	9.01
25–49	143	23.44	120	15.45
50–99	116	19.02	186	23.94
100 and over	188	30.82	389	50.06

The presence of magazines in the home and parent participation in community organizations showed a relationship to college attendance of higher-ability seniors.

Factor	Did Not Go to College	Went to College
No. of magazine subscriptions per person	2.64	3.27
No. of community organization memberships per person	1.49	2.34

One should not jump to the conclusion that improvement can be made in intelligence and the probability of a student's attending college by enlisting parents to join more clubs or to subscribe to more books and magazines. These factors may well be by-products of other cultural and economic influences in the home. Thus, it seems pertinent to look at the educational background and attitudes of other members of the student's family.

The amount of education received by the father and mother has a definite relationship to the college attendance of the high-ability senior. This is revealed in the following information:

Amount of Education	Father				Mother			
	Did Not Go to College		Went to College		Did Not Go to College		Went to College	
	No.	%	No.	%	No.	%	No.	%
Completed eighth grade...	160	26.45	100	13.39	128	20.88	89	11.25
Completed high school....	126	20.83	208	27.84	184	30.02	263	33.25
Had some college work....	43	7.11	125	16.73	51	8.32	128	16.18
Graduated from college....	42	6.94	110	14.73	30	4.89	118	14.92

The education of older brothers and sisters also seemed to indicate that educational practices followed family patterns. The following information indicates the strong tendency of high-ability seniors to follow educational patterns similar to those followed by older brothers and sisters.

Amount of Education	Older Brother				Older Sister			
	Did Not Go to College		Went to College		Did Not Go to College		Went to College	
	No.	%	No.	%	No.	%	No.	%
Some high school work....	44	17.67	23	7.94	46	15.77	19	5.69
High school graduate.....	85	36.64	42	19.63	120	49.79	59	27.96
Some college work.....	31	13.36	19	8.88	25	10.37	49	23.22
Now in college.....	35	15.09	61	28.50	23	9.54	52	24.64
College graduate.....	27	11.64	69	32.24	22	9.13	31	14.69

The respondent's appraisal of his family's attitude toward college attendance also appeared to influence his action regarding college attendance. This is noted in the following tabulation:

Family Attitude	Did Not Go to College		Went to College	
	No.	%	No.	%
Insists I go.....	50	8.38	156	19.87
Wants me to go.....	395	66.16	613	78.09
Is indifferent.....	144	24.12	15	1.91
Doesn't want me to go.....	7	1.17	1	.13
Won't allow me to go.....	1	.17	0	.00

Economic factors

Several factors that might be related to economic wealth, such as number of books in the home, membership in community organizations, and so forth, have already been given. Questions designed to provide a greater knowledge of the economic status of the families of seniors were asked.

The following data indicate that there is a relationship between the occupation of the father and college attendance.

Occupation of Father	Did Not Go to College		Went to College	
	No.	%	No.	%
Profession	41	7.11	108	14.42
Owns or manages business	107	18.54	207	27.64
Office work	40	6.93	69	9.21
Sales	25	4.33	74	9.88
Owns or manages farm	92	15.94	77	10.28
Skilled tradesman	141	24.44	132	17.62
Factory worker	115	19.93	63	8.41
Other	16	2.77	19	2.54

Responses given by high-ability seniors regarding certain living conditions proved interesting and showed the following relationship to college attendance:

Home Factor	Did Not Go to College		Went to College	
	No.	%	No.	%
Central heating	267	42.58	489	61.51
Running water	538	85.81	748	94.09
Both hot and cold running water	488	77.83	710	89.31
Telephone	419	66.83	684	86.06
Television	486	77.51	692	87.07

Another index of economic status in mid-twentieth-century America is automobile ownership. A positive relationship was found between college attendance and the number of cars owned and recency of car models. It was also noted that families of seniors who went to college tended to own the high-priced cars.

The seniors were asked to report the amount of family income in descriptive terms. One can see from the following data the relationship between income and college attendance.

Description of Family Income	Did Not Go to College		Went to College	
	No.	%	No.	%
Have difficulty making ends meet	48	7.75	33	4.18
Have difficulty getting necessities	31	5.01	17	2.15
Have all necessities but not many luxuries	218	35.22	205	25.98
Comfortable but not well-to-do	318	51.37	525	66.54
Wealthy	4	.65	9	1.14

School factors

Often it is somewhat difficult to change or alter factors centered around family and economic conditions. However, educators are continually looking for methods of improving their school systems and their educational programs. Thus, it seemed desirable to make a thorough analysis of relationships between school experiences and college attendance of high-ability seniors.

The relationship between the high school curriculum followed and college attendance can be seen in the following data.

High School Curriculum Followed	Did Not Go to College		Went to College	
	No.	%	No.	%
Commercial	135	21.60	40	5.05
Agriculture	10	1.60	4	.50
Shop, technical	15	2.40	8	1.01
College preparatory	212	33.92	544	68.69
General	234	37.44	182	22.98
Other	19	3.04	14	1.77

To determine why a student chose a certain curriculum, the seniors were asked to check the most "important reason" for selecting the high school curriculum they had followed. The results are as follows:

Reason for Selecting High School Curriculum	Did Not Go to College		Went to College	
	No.	%	No.	%
Only one offered	62	9.98	56	7.10
Teacher's advice	7	1.13	4	.51
Counselor's advice	26	4.19	43	5.45
Parent's advice	23	3.70	30	3.80
Required by school	50	8.05	48	6.08
Made best grades	15	2.42	12	15.46
Fitted vocational plans	301	48.49	456	57.79
Most interesting	95	15.30	122	15.46

About 15 percent of the upper-ability group indicated that they chose a high school curriculum because it was most interesting to them. A greater proportion, as indicated by the following data, professed real enjoyment of school.

How Well They Liked School	Did Not Go to College		Went to College	
	No.	%	No.	%
Really enjoy	155	24.88	315	32.36
Enjoy most of time	326	52.33	711	57.11
Enjoy some of time	106	17.01	69	8.76
Rarely enjoy	21	3.37	7	.89
Hate school	15	2.41	7	.89

One factor that may have contributed to the enjoyment the upper-ability seniors reported experiencing in high school is the variety of nonacademic activities offered by most schools. Participation in some of these activities was related to college attendance.

Activities Participated In	Did Not Go to College		Went to College	
	No.	%	No.	%
Musical organizations	256	40.83	357	44.91
Football, basketball, track	207	33.01	301	37.86
Physical education classes	420	66.99	545	68.55
Clubs, organizations, societies	489	77.99	703	88.43
Work (outside job)	294	46.89	372	46.79
None	16	2.55	4	.50
Others	51	8.13	86	10.82

Summary

The purpose of this study was to determine the extent to which high-ability high school seniors in Arkansas go to college and to investigate possible factors that are associated with college attendance. For the purpose of this study, high-ability seniors were identified as students who scored at the 67th percentile or above on the American Council on Education Psychological Examination.

The findings indicated several factors related to college attendance. For purpose of analysis, these factors were classified according to home and family, economic condition, and school. Examination of the responses showed that there was a close relationship between college attendance by high-ability high school graduates and the education of parents, the education of older brother and sister, marital status of the seniors, and the number of magazines and books in the home.

When factors that indicated the economic status of the high school senior's family were studied, an obvious relationship was found between economic status and college attendance by the senior.

Several high school experiences showed a positive relationship with college attendance. The high school curriculum followed by the seniors showed a closer relationship to college attendance than any other school factor. Thus, it appears that if the high-ability high school student is identified early in his educational career and guided into a college-preparatory curriculum, he will have a much greater chance of going to college than if this does not occur.

In 1956, the U.S. Advisory Commission on Educational Exchange recommended unanimously that eventually $50 million to $75 million could be spent effectively in the Government's educational exchange program. The fact is that Government will have to play a bigger part in many areas if we are to sustain our present international program while meeting our growing national needs. Educators predict that the student group that will be hit first by the overcrowded higher education facilities throughout the United States and by the long waiting lists are the foreign students. The pressure to admit qualified U.S. students means that applications from several thousand foreigners whose qualifications are in the fringe area would have to be turned down.

Looking ahead to 1965 when U.S. college enrollment is supposed to increase 38 percent, we must make provision now to increase housing and classroom facilities along with available teaching personnel to cope with 1,278,000 new students. Basic to such blueprints for expansion should be room for 100,000 of these undergraduate and graduate students from foreign countries in Asia, Africa, and Latin America, where the language barrier is a particular problem and educational facilities in lower grades are frequently below the standards that they will ultimately attain, will have to be turned away. They may, in that case, turn to Communist universities, which already have shown a remarkable capacity for absorbing such students, giving them extensive language and undergraduate training in special programs before entering them into regular classes. This is but another facet of the Communist challenge to the institutions of the free world which demands the same attention we must give to countering their aid-trade offensive aimed at the free world's economy, their propaganda, and their military challenge.—"Address," by Jacob K. Javits, in *Toward a Foreign Policy for Higher Education*, edited by Richard A. Humphrey, published by the American Council on Education, June 1960.

Early Collegiate Degrees for Women*

WALTER CROSBY EELLS

FOR ALMOST three centuries of higher educational history in America, collegiate degrees were conferred only on men. Higher education for women did not begin until the first half of the nineteenth century. In fact, grave doubts were expressed even then of the propriety of academic degrees for women. Thus, Catherine Beecher, one of the pioneers in higher education of women, sister of Henry Ward Beecher, writing in 1835, considered the "bestowment of college degrees on females" as of questionable propriety. She wrote that "It certainly is in very bad taste, and would provoke needless ridicule and painful notoriety."

When, a few years later, the first women students of higher educational institutions, especially of colleges exclusively for women, were ready for graduation, it seemed to the authorities of some of these institutions particularly inappropriate to confer "bachelor's" degrees on the young women. Hence, a considerable number of institutions in the latter half of the nineteenth century adopted, at the baccalaureate level, as appropriate feminine substitutes the designations Mistress of Arts, Maid of Arts, and Sister of Arts.

Of these newly coined degrees, the degree of mistress proved the most popular and quickly extended into a number of specialized fields whose degrees hence included Mistress of Art, Mistress of Classical Literature, Mistress of English, Mistress of English Literature, Mistress of Liberal Arts, Mistress of Liberal Learning, Mistress of Music, Mistress of Philosophy, Mistress of Polite Literature, and Mistress of Teaching.

Maid of Arts was not so widely used, but it was reported by the U.S. Commissioner of Education in 1879 as given by Waco University, Texas. Within the following five years it spread from Texas to institutions in Kentucky, Georgia, and South Carolina. In addition, Maid of English and Maid of Philosophy were granted, and, in the Far West, an Oregon institution awarded Maid of Science. The use of Sister of Arts, however, was relatively short-lived. It was reported only at Wheaton College, Illinois, from 1873 to 1876.

The origin of these distinctively feminine degrees, however, at least that of Mistress, far antedates first reports of them by the U.S. Commissioner of Education. It has not been possible to determine with certainty their first use, but Beaver College, Pennsylvania, a college for women established in 1853, states that its first two graduates in 1856 received the degrees of Mistress of Liberal Arts and Mistress of English Literature.

In 1872 the Commissioner of Education reported 39 degrees conferred by "Institutions for the Superior Instruction of Women": Mistress of English Literature, 15; Mistress of Arts, 13; Mistress of Liberal Arts, 7; Mistress of Music, 3; and Mistress of Philosophy, 1. That the Mistress degree plan was not universal, however, even in colleges for women, is shown by the fact that the same report states that 12 bachelor's degrees were conferred by other colleges for women.

* Based on a part of one chapter of *Academic Degrees* by Walter Crosby Eells and Harold A. Haswell, giving information on more than 2,400 degrees used in American universities and colleges, to be published by United States Office of Education in 1960.

By 1886 the number of recipients of these degrees had so increased that the Mistress of Arts was given to 180 graduates of 26 institutions, the Mistress of English Literature to 75 graduates of 16 institutions, the Mistress of Music to 16 graduates of 6 institutions, and the Mistress of Liberal Arts to 12 graduates of 4 institutions.

After 1886 the Commissioner of Education reported only the number of graduates of colleges for women, without indicating their different degrees. It is probable, however, that use of the Mistress and analogous degrees declined during the last decade of the nineteenth century. But that it did not cease for at least another quarter century is shown by the fact that as late as 1924 the catalogue of Burrett College, Tennessee, announced the degrees of Bachelor of Arts and Bachelor of Science for young men, but Mistress of Arts and Mistress of Science for young women. Burrett closed its doors in 1924 or 1925. Its practice was unusual, if not unique, since it was a coeducational institution, and most of the mistress and similar degrees mentioned above were conferred by colleges for women.

Another early solution of the problem of an appropriate degree for women graduates, used by a few institutions in the 1870's, was that of conferring on women the standard bachelor's degrees of B.A., B.L., B.L.A., and B.S., but reporting the women receiving them not as bachelors but as Graduate in Arts, Graduate in Letters, Graduate in Liberal Arts, and Graduate in Science.

Still another solution of the same period was the use of laureate degrees, which were free of sex implications. Thus, we find Laureate of Arts, Laureate of Letters, Laureate of English Literature, and Laureate of Science—all conferred on women.

Wesleyan College, chartered in 1836 in Georgia, claims the distinction of having the first graduates from a chartered college for women, eleven young women comprising its first graduating class in 1840. What degree did they receive? Fortunately, this question can be answered, even if not entirely satisfactorily, from a contemporary record, for the college has in its historical collection the diploma given to Catherine Brewer, the first member, alphabetically, of that pioneer class. This diploma reads, in part, as follows:

> The President, as the representative of the Faculty of the Georgia Female College, gives this testimonial, that Miss Catherine E. Brewer, having passed through the regular Course of Study in this Institution, embracing all the sciences which are usually taught in the colleges of the United States, with such as appropriately belong to Female Education in its most ample range, was deemed worthy of the First Degree conferred by this Institution, and accordingly it was conferred upon her on the 16th of July 1840. By Testimony of which the signatures of the President and Faculty and the Seal of the College are hereto affixed.

Affixed are the signatures of the president, George F. Pierce, and of three professors, of mathematics, of natural sciences, and of languages. The modest description of the scope of the curriculum is noteworthy! While this is an interesting document historically, it is disappointing in studying the subject of degrees, because it mentions only the "first degree" without any designation of its field.

The catalogue of the college for 1855–56, the first one available in the Library of the Department of Health, Education, and Welfare, gives the names of all alumnae from 1840–55, but does not designate their degrees. The catalogue for 1865–66 gives names of alumnae to 1860, and after that date classifies them as receiving "first degree" and "second degree." The catalogue for 1871–72 speaks of the "second degree in English

literature." The catalogue for 1874–75 gives the names of all previous graduates, listing them in each class as A.B.'s, beginning with the class of 1840, and A.M.'s beginning in 1860. It would appear, therefore, that after that date all first graduates were known retroactively as "Bachelors" of Arts.

Oberlin College (opened 1833), the first coeducational institution to admit young women on the same basis as young men, graduated a class of nine men and three women in 1841, all with the Bachelor of Arts degree.

During the twentieth century, for the most part, no distinction has been found to exist between degrees for men and for women, except as a matter of natural selection made on the basis of subject matter studied, and even in this respect there is no subject that is the exclusive preserve of either sex. Thus in 1957–58 women secured 133 degrees in engineering, 4 in forestry, and 4 in military science. On the other hand, in the same year men were awarded 54 degrees in nursing and 54 in home economics.

The first professional doctor's degree earned by a woman was the Doctor of Medicine conferred on Miss Elizabeth Blackwell, a native of England, in 1849 by the Medical Institution of Geneva, New York, now the College of Medicine of Syracuse University.

The first research doctor's degree earned by a woman was the Doctor of Philosophy conferred by Boston University in 1877 on Miss Helen Magill whose dissertation was "Greek Drama." Miss Magill was the daughter of the second president of Swarthmore College. Later she became the wife of Andrew D. White, first president of Cornell University and later ambassador to Germany. Mrs. White died in 1944 at the age of 91.

The first degree of Doctor of Science earned by a woman was conferred by Cornell University in 1895 on Caroline W. Baldwin (Mrs. Charles T. Morrison) whose dissertation was "A Photographic Study of Arc Spectra."

Between 1877 and 1900, 229 doctor's degrees of the research type were conferred on women by 29 institutions. The majority of those women were doctors of philosophy, but there were also 17 doctors of pedagogy from New York University beginning in 1891, and four doctors of science from Cornell University, beginning in 1895.

Since 1870, there have been conferred on women 425,032 master's degrees, or 34 percent of the total number conferred in that period. Since 1877, doctor's degrees of the research type have been earned by 19,616 women, or 12 percent of the total number earned in that period. Currently the situation is quite similar. In 1958–59, women received 34 percent of the bachelor's and first professional degrees, 32 percent of the master's degrees, and 11 percent of the doctor's degrees conferred in the United States.

Financial Statements of the American Council on Education

American Council on Education
1785 Massachusetts Avenue
Washington 6, D.C.

May 24, 1960

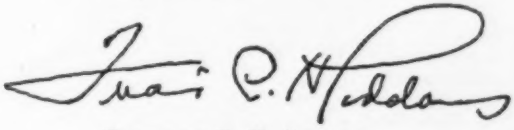
Dr. Arthur S. Adams
President
American Council on Education
1785 Massachusetts Avenue, N.W.
Washington 6, D.C.

Dear Dr. Adams:

I am submitting herewith the financial statements for the American Council on Education for the year ended December 31, 1959. These statements are a review of the budgeted operations for the year and are based on the budget approved by the Council's Executive Committee. In general, the accounts of the Council are maintained on a cash basis.

The business records for the year have been examined by our auditors, Main and Company, and detailed copies of their report are on file in the appropriate executive offices.

Respectfully submitted,



Frederick P. H. Siddons
Treasurer

AMERICAN COUNCIL ON EDUCATION

BALANCE SHEET

December 31, 1959

ASSETS

CURRENT FUNDS			
General			
Central Services Fund			
Cash	$ 650.40		
U.S. Government securities (at cost)	20,000.00	$20,650.40	
Publications Fund			
Cash	$ 1,236.31		
U.S. Government securities (at cost)	145,000.00		
Loan to Plant Fund	5,000.00	151,236.31	
Building Fund			
Cash	$ 3,467.25		
U.S. Government securities (at cost)	5,000.00	8,467.25	
Reserve Funds			
Accrued leave reserve			
Cash	$ 59.72		
U.S. Government securities (at cost)	5,000.00	5,059.72	
Depreciation reserve (equipment)			
U.S. Government securities (at cost)		7,200.00	
Other reserve funds			
Cash	$ 3,846.91		
U.S. Government securities (at cost)	250,000.00		
Loan to Plant Fund	112,620.00		
Deferred items	1,798.85	368,265.76	
Total general			$ 560,879.44
Restricted			
Research and service project funds			
Cash		$ 14,606.98	
U.S. Government securities (at cost)		568,440.95	583,047.93
Total current funds			$1,143,927.37
PLANT FUND			
Land and buildings, Washington, D.C.			
1785 Massachusetts Avenue, N.W.		$472,397.56	
1777 Massachusetts Avenue, N.W.		72,958.25	545,355.81
Total assets			$1,689,283.18

BALANCE SHEET—*Continued*

December 31, 1959

LIABILITIES

CURRENT FUNDS				
General				
Central Services Fund				
Unappropriated fund balance			$ 20,650.40	
Publications Fund				
Liability for unexpended publication advances		$ 43,489.29		
Fund balance				
Appropriated	$ 87,000.00			
Unappropriated	20,747.02	107,747.02	151,236.31	
Building Fund				
Unappropriated fund balance			8,467.25	
Reserve Funds				
Accrued leave reserve				
Fund balance			5,059.72	
Depreciation reserve (equipment)				
Fund balance			7,200.00	
Other reserve funds				
Fund balance			368,265.76	
Total general				$ 560,879.44
Restricted				
Research and service project funds				
Accrued leave			$31,390.14	
Fund balances			551,657.79	583,047.93
Total current funds				$1,143,927.37
PLANT FUND				
Loans payable				
To Publications Fund		$ 5,000.00		
To other reserve funds		112,620.00	$117,620.00	
Net investment in plant			427,735.81	545,355.81
Total liabilities				$1,689,283.18

AMERICAN COUNCIL ON EDUCATION

STATEMENT OF INCOME AND EXPENDITURES—OPERATING FUNDS

Year Ended December 31, 1959

	General Fund	*Central Services Fund*	*Publications Fund*	*Building Fund*	*Total**
INCOME					
Membership dues	$202,400.00				$202,400.00
Fees and services					
Administrative fees	119,925.22				119,925.22
All other	13,151.67	$106,301.17			119,452.84
Sales of publications			$158,700.18		158,700.18
Rentals				$101,862.39	101,862.39
Interest on investments			350.00		350.00
All other	178.39		91,143.62	31.97	91,353.98
Total income	$335,655.28	$106,301.17	$250,193.80	$101,894.36	$794,044.61
EXPENDITURES					
Salaries	$177,133.26	$ 35,333.75	$ 27,626.54	$ 34,946.54	$275,040.09
Employees' benefits: social security, retirement, and other insurance	22,482.48	2,677.12	2,996.68	874.38	29,030.66
Provision for accrued leave	2,000.00				2,000.00
Rent	15,646.57	2,116.92	4,226.76		21,990.25
Office supplies and expense	12,613.23	14,256.79	1,791.63	225.20	28,886.85
Furniture and equipment acquisitions	2,597.33	1,480.23	866.88	236.24	5,180.68
Maintenance and repairs		550.95	128.83	14,763.41	15,443.19
Printing			91,775.84		91,775.84
Editorial			9,644.56		9,644.56
Royalties and similar payments			25,533.22		25,533.22
Freight, postage, and express	1,856.58	42,614.40	42,965.56		87,436.54
Sales promotion			19,474.84		19,474.84
Real estate taxes				8,831.80	8,831.80
Heat, light, power, and water				15,115.59	15,115.59
Interest				4,475.45	4,475.45
Committees, commissions, and conferences	39,764.19				39,764.19
Bulletin	37,803.62				37,803.62
Educational Record	19,195.54				19,195.54
Administrative fees		6,065.24	12,125.00		18,190.24
All other	16,426.64	1,764.67	485.19	5,403.49	24,079.99
Total expenditures	$347,519.44	$106,860.07	$239,641.53	$84,872.10	$778,893.14
Excess of income over expenditures	$11,864.16†	$558.90†	$10,552.27	$17,022.26	$15,151.47

* Income and expenditures include transactions between funds, such as rental charges from the Building Fund, service charges from the Central Services Fund, printing charges from the Publications Fund, and charges for administrative fees from the General Fund.

† Excess of expenditures over income.

AMERICAN COUNCIL ON EDUCATION

STATEMENT OF RECEIPTS AND DISBURSEMENTS—RESEARCH AND SERVICE PROJECT FUNDS

Year Ended December 31, 1959

Fund	*Balance Jan. 1, 1959*	*Receipts*	*Disbursements*	*Balance Dec. 31, 1959*
American-Sponsored Schools in Cuba and Mexico	$ 500.00	$ 29,647.96	$ 30,147.96	—
American Degree Mills	—	5,000.00	6,427.96	$ 1,427.96*
American Junior Colleges Handbook, 1960 Edition	—	18,000.00	14,568.67	3,431.33
American Universities and Colleges Handbook, 1960 Edition	—	30,000.00	27,232.18	2,767.82
Anglo-American School, Oruro, Bolivia	—	3,000.00	3,000.00	—
Asia Foundation	—	300.00	289.49	10.51
Canada–United States Committee on Education				
Carnegie Corporation of New York grant	310.40	—	310.40	—
Study of Federal Aid to Higher Education in Canada	8,215.00	—	—	8,215.00
Carnegie Corporation of New York grant for conferences and small projects	9,395.39*	21,351.32	8,608.00	3,347.93
College Law—A Handbook for Administrators	2,217.50	5,000.00	6,014.72	1,202.78
College Teaching as a Career	3,597.25	7,000.00	6,824.08	3,773.17
Conference on College Teacher Preparation Programs	4,378.55	—	2,750.81	1,627.74
Conference To Review Programs of Cultural and Educational Exchange	—	3,000.00	3,000.00	—
Commission on Accreditation of Service Experience				
U.S. Armed Forces Institute Contract, DA-49-039-IE-84	10,763.69*	39,958.05	29,708.85	514.49*
U.S. Armed Forces Institute Contract, DA-49-039-IE-92	—	9,937.51	25,998.52	16,061.01*
Commission on the College Student	128.39	3.20	131.59	—
Commission on the Education of Women				
Carnegie Corporation of New York grant	2,616.23	—	2,616.23	—
Lilly Endowment, Inc.—1959 Budget	31,155.55	—	31,155.55	—
Lilly Endowment, Inc.—1960 Budget	—	54,833.99	19,514.49	35,319.50
Special account	—	4,355.55	4,355.55	—
Committee on College Teaching—transfer from American Council on Education	1,068.87	639.98	1,708.85	—
Committee for Educational Liaison with African Countries	—	12,500.00	2,009.20	10,490.80
Committee on Equality of Opportunity in Higher Education	337.51	636.98	974.49	—
Committee on Equality—conference	8,000.00	—	5,665.96	2,334.04
Committee on Leaders and Specialists				
U.S. Department of State Contract, SCC 23574	237.91	—	237.91	—
U.S. Department of State Contract, SCC 24163	63.91*	450.68	386.77	—
U.S. Department of State Contract, SCC 25158	259,015.36	102,056.00	288,080.13	72,991.23
U.S. Department of State Contract, SCC 26452	80,176.18	380,044.00	412,032.30	48,137.88
U.S. Department of State Contract, SCC 27389	—	27,000.00	31,975.22	4,975.22*
U.S. Department of State Contract, SCC 26477	—	808.00	808.00	—
Committee on Intercultural Studies in Colleges and Universities	—	29,203.00	3,136.47	26,066.53
Committee on Measurement and Evaluation—conferences	—	2,000.00	427.84	1,572.16
Committee on Religion—preliminary study	326.81	421.19	748.00	—
Committee for the Study of Character Development in Education	142.21	—	142.21	—
Committee on Television				
Budget, November 1, 1958, to October 31, 1959—The Ford Foundation	998.83*	15,000.00	14,001.17	—
Budget, November 1, 1959, to October 31, 1960—The Ford Foundation	—	1,424.29	3,091.89	1,667.60*
Penn State Conference	2,708.22	—	2,579.48	128.74
Special Conference Fund	—	5,000.00	2,837.46	2,162.54
Special account	484.79	60.00	—	544.79
Council for Cooperation in Teacher Education				
Budget, July 1 to December 31, 1956 and 1957 appropriation	412.77*	412.77	—	—
Budget, 1959	—	6,350.00	5,390.32	959.68
Florida Conference	3,166.99	—	3,166.99	—
Kentucky Conference	443.27	—	443.27	—
Proficiency Exams Conference	—	2,000.00	2,000.00	—

* Debit.

Statement of Receipts and Disbursements—*Continued*

Fund	*Balance Jan. 1, 1959*	*Receipts*	*Disbursements*	*Balance Dec. 31, 1959*
Survey of Dentistry				
Budget, June 1, 1958, to May 31, 1959	$ 58,916.03	——	$ 58,916.03	——
Budget, June 1, 1959, to May 31, 1960	——	$256,512.40	125,764.79	$130,747.61
Educators from the U.S.S.R.	82.08	33.72	——	115.80
Exploratory Conference on Research and Study in the Field of Highway Finance	1,951.42	——	1,951.42	——
Ford Foundation grant for conferences and small projects	10,801.92*	50,548.63	29,000.00	10,746.71
Handbook on Measurement and Evaluation, preparation of	3,475.26	——	4,582.65	1,107.39*
Inter-American Schools Service				
U.S. Department of State Contract, SCC 25187	.01	——	.01	——
U.S. Department of State Contract, SCC 26438	2,307.87	184,500.00	186,807.87	——
U.S. Department of State Contract, SCC 27524	——	——	12,632.79	12,632.79*
Annual conference funds	264.26	——	240.37	23.89
Joint Council on Educational Television				
Budget, 1958	14,134.72	——	14,134.72	——
Budget, 1959	——	114,134.72	103,715.95	10,418.77
Master of Arts in Teaching Handbook	——	3,000.00	164.26	2,835.74
Manual on University and College Business Organization and Administration	918.25	——	——	918.25
Microfilms, cost and shipping to India, Contract SCC 26582	——	10,000.00	2,509.78	7,490.22
Office of Institutional Projects Abroad—The Ford Foundation				
Budget, 1957–58	4,575.26	——	4,575.26	——
Budget, 1958–59	——	33,908.26	29,698.95	4,209.31
Budget, 1959–60	——	29,334.00	——	29,334.00
Conference on Orientation to Learning—Notre Dame	5,108.80	——	5,108.80	——
Revision Program, Cooperative Study of Secondary School Standards	2,537.54	——	2,537.54	——
Revision Program, National Study of Secondary School Standards	——	16,865.54	17,169.15	303.61*
Office of Statistical Information and Research				
Carnegie Corporation of New York grant				
Third year of operation	116,207.31	75,000.00	62,502.22	128,705.09
Spotlight on the College Student	2,443.75	478.04	2,921.79	——
Study of ICA Participant Training Program	——	22,000.00	146.73	21,853.27
Study Regarding Survey of Business and Industry	10,480.00	——	159.01	10,320.99
Study of the Soviet Union in Social Studies	665.20	——	——	665.20
Survey of the American University of Beirut, Contract SCC 26586	——	3,500.00	3,368.47	131.53
Tax Service for College Business Officers	5,000.00	——	648.56	4,351.44
Teacher Characteristics Study—The Grant Foundation				
Preparation of report	3,408.79	——	3,408.79	——
Printing and distribution of report	——	15,000.00	——	15,000.00
Thurstone Primary Mental Abilities Research Fund	983.13	——	——	983.13
Veterans' Testing Service				
Budget, July 1, 1958, to June 30, 1959	11,795.78	14,601.08	26,396.86	——
Budget, July 1, 1959, to June 30, 1960	——	22,758.97	10,805.75	11,953.22
Washington International Center—Orientation Program for				
Foreign Grantees under the Educational Exchange Program				
U.S. Department of State Contract, SCC 26365	96,766.74	——	96,766.74	——
U.S. Department of State Contract, SCC 27495	——	107,382.00	96,284.71	11,097.29
Latin American Project	——	22,000.00	18,975.57	3,024.43
Special account	1,946.91	7,797.14	7,958.74	1,785.31
Washington International Center—Meridian Hill Project—				
The Ford Foundation grant	——	——	41,447.51	41,447.51*
Total, Research and Service Project Funds	$720,709.59	$1,806,748.97	$1,975,800.77	$551,657.79

*Debit.